February, 1926
PERIODICAL ROOM

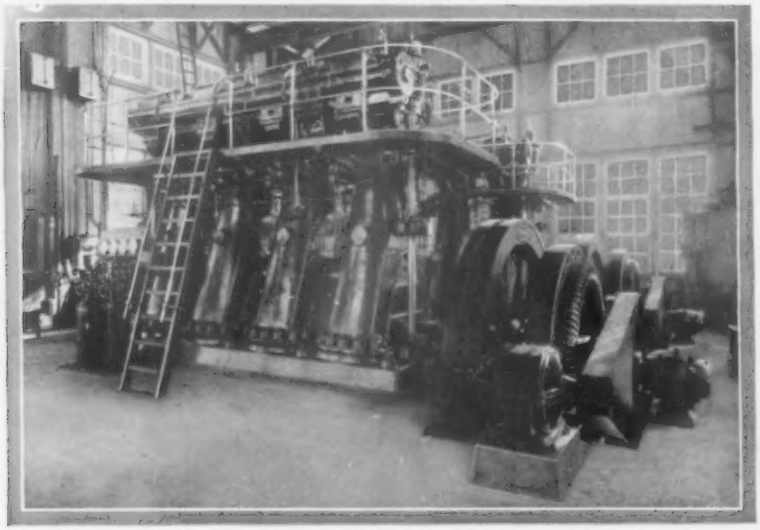
Vol. XXXIV No. 2
50 Cents $4 a Year

The American City

NIGHT VIEW OF LINCOLN MEMORIAL, WASHINGTON, D. C.

"In this temple, as in the hearts of the American people for whom he saved the Union, the memory of Abraham Lincoln is enshrined forever."

FULTON DIESEL



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Fernandina, Fla., Municipal Plant.

Fulton-Diesels Reduce Fuel Cost 80 Per Cent

These FULTON-DIESELS installed in the Fernandina, Fla., light, water and ice plant completed their first year's operation on Sept. 4th, 1925. The city was served without any interruption during the entire period.

City Manager E. C. Garvin and City Auditor H. P. Livingston are the authorities for the following figures:

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Fuel oil used during first 12 months' operation of Fulton-Diesel plant	7,635.19
Saving	$29,006.53

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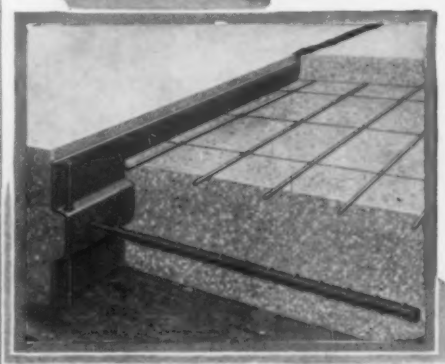

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Vol. XXXIV
No. 2

FEBRUARY
1926

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To Stimulate Low-Cost Housing

A Proposal for Limited Dividend Housing Corporations, Aided by Public Credit and with Power of Condemnation

From the Annual Message to the New York Legislature, Presented January 6, 1926,

By Governor Alfred E. Smith of New York

INVESTIGATIONS and studies made by every type of agency force us to the realization that the construction of certain types of homes for wage-earners of moderate income is unprofitable. The building of homes has been looked upon as an enterprise conducted like any other business in which the element of speculative profit has been operative. So long as this point of view is maintained it has been proved to be impossible to construct the homes we need or to rebuild the tenement areas, whether in New York City or elsewhere, which continue throughout the years to be a menace to the health and morals of the community

One of the elements that has undoubtedly proved an obstacle to private capital for this class of housing has been the cost of borrowing money, and another is the slow and expensive process of acquiring sufficient land to conduct a profitable building operation on a large scale, and such building operations cannot be profitable except on a large scale.

If the state of New York is to maintain its position in the front rank of the progressive commonwealths of the country, after having taken the lead in enacting during the last twenty years progressive legislation along almost every other humane line, we cannot overlook the all-important problem of having the state lend its aid to the improvement of the living conditions of its people. Nothing that I can think of will go further to promote the health, comfort and morals of our people than wholesome and sanitary housing.

I have become convinced that if there is to be any satisfactory and reasonably speedy solution of the problem, the state must revise its laws to meet the situation. There are two prime essentials to the solution. The first is to provide for the borrowing of money at low rates of interest; the second is the use of the power of condemnation in order that large parcels of land may be acquired at reasonable prices.

To achieve these essentials, the state should provide by law for the incorporation of limited dividend corporations clothed with the power of condemnation, in order that the corporation may be in a position to construct modern dwelling houses upon square blocks at a time.

Power should be given to the respective municipalities to issue tax-exempt bonds, the proceeds of which may be loaned to these limited dividend corporations. The extension of public credit is predicated upon the theory that these corporations are to perform a quasi-public service and are to submit to the regulation of the sovereign power as to the character of construction of buildings and amount to be charged as rent..

A State Housing Bank as an Alternative Plan

An alternative plan may be the creation of a State Housing Bank similar to the Federal Land Bank, which was organized for the relief of farmers suffering from much the same difficulties that our wage-earners are. While I am not familiar with the operation of the Federal land banks, I am given to understand

that similar state banks could be organized to finance construction of family dwellings much after the plan adopted by the Federal Government for the relief of farmers.

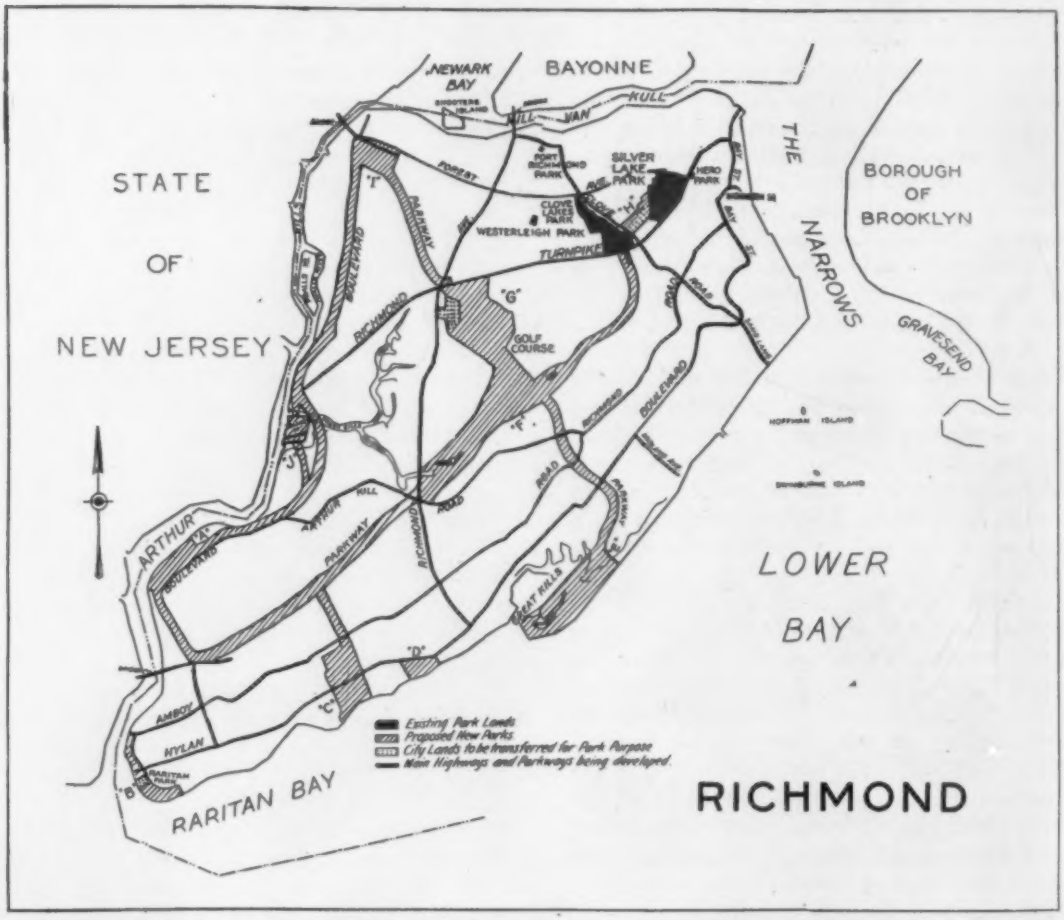
Many competent lawyers are of the opinion that these results may be obtained without constitutional amendment, but in order to leave no question about it, considering the importance of the step to be taken, it might be well to provide the necessary amendments to the fundamental law that would leave the plan finally adopted beyond any possible pale of constitutional objection. I advise the enactment of such proposed amendments and the necessary legislation to accomplish these purposes.

An Inspiration and a Warning

CITIES which have not yet attained metropolitan size may well be stimulated to increased activity in the acquisition of lands for park and playground development by what is now happening in New York City. As indicated by the newspaper heading reproduced on page 129, a movement is under way for an appropriation by the city of $30,000,000 for land alone, in the five boroughs of New York, for new parks and playgrounds. Of this imposing total, $20,000,000 would be expended for major parks and parkway areas, and $10,000,000 for playground sites.

The proposal has the backing of the Metropolitan Conference of City and State Park Authorities, organized "to advise as to connections and relations between state and local parks in the metropolitan region" and of an Advisory Committee of prominent citizens. The plan as its affects the boroughs of Richmond (Staten Island) and Queens is shown in the accompanying maps.

At a meeting in advocacy of this $30,000,000 project, held at The City Club of New York



EXISTING AND PROPOSED PARKS AND PARKWAYS IN THE BOROUGH OF RICHMOND, NEW YORK CITY

on January 9, the importance of prompt and favorable action was forcibly presented by Robert Moses, Chairman of the State Council of Parks, and by Jay Downer, Chief Engineer of the Westchester County Park Commission. Unless the areas and rights of way are acquired in the very near future, it was pointed out by Mr. Moses, their acquisition will be entirely impossible because of real estate speculation, building plans and other developments which already involve a considerable part of the areas under consideration.

Emphasis was given by Mr. Downer to the folly of the plans—or lack of plans—so common in American cities, whereby park development lags behind rapid transit extension, thus making the acquisition of lands for recreation purposes much more difficult and vastly more expensive than if undertaken at an earlier period of the city's history.

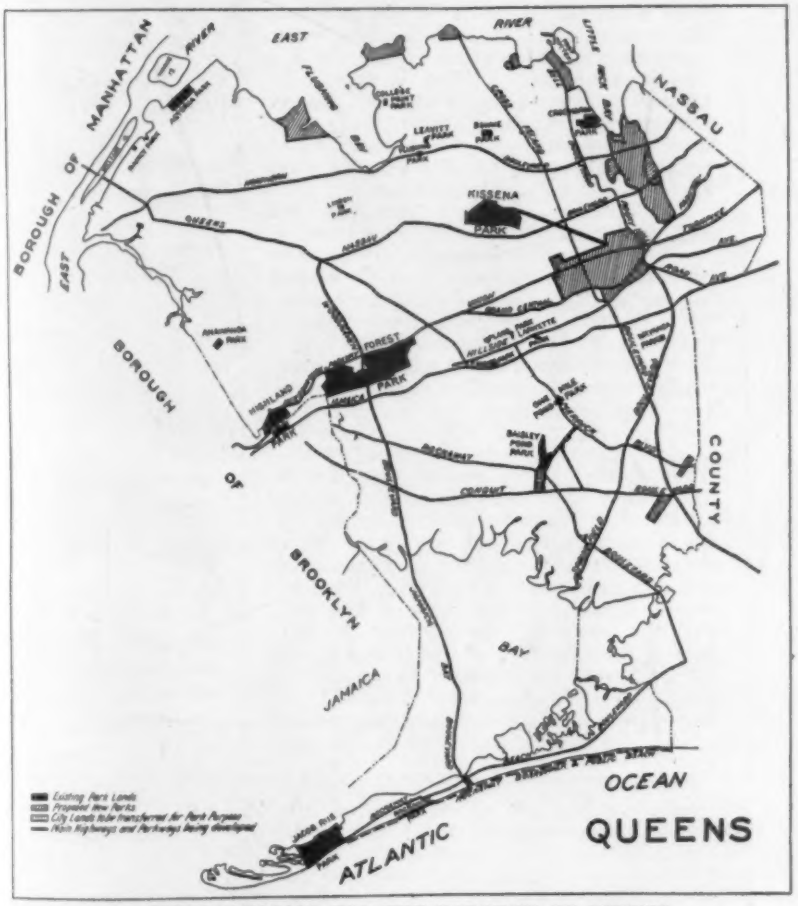
Westchester County, in its exceptionally fine and extensive park and parkway developments, and in its plans for the acquisition of additional areas in the near future, is setting an example which other counties and municipalities throughout the United States would do well to emulate.* And that even the city of New York is profiting greatly by the forethought of some of its previous generations of citizens is evident from the fact, as cited at the City Club meeting, that land values have risen to $5,000,000 a single acre in the vicinity of Central Park. If Manhattan Island did not already possess this extensive open space, what hope would there be to secure it now?

WANTS $30,000,000 TO BUY PARK LANDS

Conference of Park Authorities Urges City-Wide Assessment to Solve Problem.

SAYS LOCAL ACTION FAILS

Sum Is to Purchase Acreage Only—Link With State and County Systems Sought.



THE PROPOSALS FOR THE BOROUGH OF QUEENS

* See Mr. Downer's article on "County Park Development and Regional Planning," in THE AMERICAN CITY for May, 1925, pages 509-512. On January 18, 1926, the Board of Supervisors of Westchester County voted an additional appropriation of $12,630,000, making a total of about $34,000,000 already authorized for the county park program.

Planning a Local Campaign for Fire Prevention

How Cities Large and Small Are Safeguarding Against Fire

By Percy Bugbee

Field Engineer, National Fire Protection Association

AS a result of an intensive study of many cities throughout the United States, there has been developed a plan of organization and operation which, if conscientiously carried out, can effectively operate to improve fire loss conditions in any city.

In organizing for fire prevention work in any community, the attempt should be made to create a fire prevention committee which will be representative of the various influences in the community which should be most helpful in work of this character. Naturally, the fire chief is essential, and his advice and support are necessary to successful work. Other city officials logically interested in fire prevention problems are the director of public safety or fire commissioner, the city building inspector, and the water-works superintendent. In organizing a fire prevention committee it is important to secure the backing of the chamber of commerce and other local civic bodies. Through the splendid cooperation of the Chamber of Commerce of the United States, fire prevention committees have been appointed by the chambers in over four hundred cities. The various luncheon clubs often show an interest in this work. The engineers and architects, the various manufacturers' and merchants' associations, women's clubs, and all other influential bodies can be represented, as the reduction of fire losses affects the entire community and is deserving of the interested support of every citizen.

Following the organization of a competent fire prevention committee, a definite, permanent plan of activity must be laid out. In planning a fire prevention campaign there are four logical divisions of the work:

1. Public fire protection
2. Laws and ordinances
3. Structural improvements
4. Public education

A brief discussion of the various items to be considered under each of these headings may be helpful.

Public Fire Protection

Preliminary to undertaking a survey of the public fire protection of any community, the committee should secure a copy of the Engineering Survey prepared by the National Board of Fire Underwriters for the local insurance rating organization. This will indi-

The Local Attack Against Fire Waste

America's tremendous annual fire loss, steadily increasing year after year, is estimated to have taken a toll of 15,000 lives and $549,000,000 worth of property in 1924. The rising tide of this terrific annual drain upon our resources must be turned.

In a logical approach to this problem, the first premise is that the fire waste must be attacked locally. While the fire loss is a national burden, it cannot be treated in any wholesale manner. Every fire starts somewhere, because of some local carelessness, and the combination of purely local factors permits a fire to start and to spread and to cause loss.

A great mass of technical and practical information on fire hazards, fire protection and fire prevention is now available. The necessary standards have been developed by painstaking work of competent engineers through the technical committees of the National Fire Protection Association. The Association realized that this information was of no great value unless properly applied in local communities, and about a year and a half ago adopted a plan which provided for a study of various cities throughout the country with a view to building up in each city a local organization that would function to reduce the fire losses of that community. At the outset the Association explained to various national organizations its purpose of an intensive local attack upon the first waste, with the result that the interest and support of the Chamber of Commerce of the United States, the National Association of Credit Men, the American Water Works Association, the International Association of Fire Engineers, and other bodies was secured.

The accompanying article is the response of the field engineer of the National Fire Protection Association to a request from The American City for an outline of the plan of local campaign now recommended by the Association.

PLANNING A LOCAL CAMPAIGN FOR FIRE PREVENTION

Municipal officials and civic organizations in a rapidly increasing number of cities are co-operating to reduce local fire losses and secure lower fire insurance rates.

The economic importance of the problem is evident from the fact that fire losses in the United States, as estimated by the National Board of Fire Underwriters, passed the $500,000,000 mark in 1922, and increased to $535,372,782 in 1923, and $549,062,124 in 1924.

cate the essential improvements considered necessary by competent fire prevention engineers. A study should then be made of the needs of the fire department, to determine whether the personnel and apparatus are sufficient in quality and quantity to cope with fire possibilities in the community. In many cities the great importance of a modern, well-manned fire-fighting force is not sufficiently realized, and logically the first step in any attempt to improve conditions in the community is to make sure that fires that do occur can be properly and efficiently extinguished.

The importance of *proper training and drill* of the personnel of the fire department through an adequate and properly conducted drill school is very great. Every city of moderate size should conduct its own drill school, and in the smaller communities the chief or some assistant should be sent to a satisfactory drill school elsewhere, so that a certain amount of regular training can be given to the men.

One of the most important functions of the modern fire department is *inspection work*. In every city there should be an adequate regular inspection of all mercantile, industrial, and public buildings, both by the regular firemen and by a fire prevention bureau properly organized and with adequate authority behind it. Efficient inspection will do more to reduce hazards, and consequently the fire record, than any other one phase of fire prevention work.

The fire alarm telegraph system should be investigated to make sure that it is reliable and adequate for the needs of the community. This important branch of the fire service is not prominent in the public eye and is very often made inefficient by lack of proper maintenance. Many large fires have been directly traceable to a delay in the fire alarm.

Salvage work on the part of the fire department is becoming better understood, and in a number of cities now operating municipal salvage corps as a part of the fire service a very satisfactory reduction in the loss record has been made. The work of a well-trained salvage corps in eliminating water and exposure losses very often pays for itself in one big fire.

The question of *incendiary fires* is an important one in many cities. Any fire prevention plan should take into consideration a study of the handling and prosecution of incendiary fires by cooperation of the police department and other agencies.

The public water-supply is, of course, an essential part of the fire protection defenses, and a careful survey should be made which would indicate the efficiency of the water-supply from a fire protection standpoint. The distribution system, number and location of hydrants, size of mains, water pressure, etc., all should be investigated.

There is now going on a move to *standardize hose couplings* throughout the country. The advantages of this are apparent and cities not now on standard thread should move to correct this condition as soon as possible. One can never tell when a large conflagration requiring the service of adjoining communities may occur.

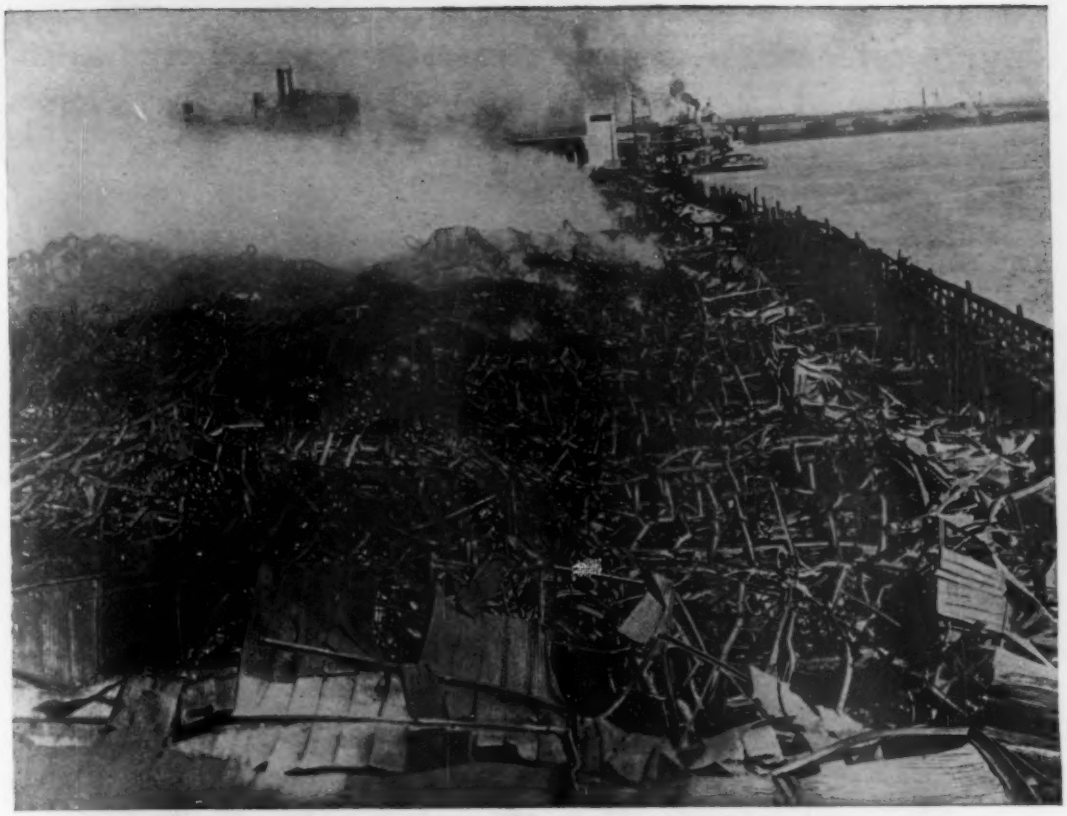
The problem of *rapid response to a fire* is becoming a very serious one in almost every city because of the tremendous increase in traffic congestion in recent years. In any study of the fire protection needs of the community this question must be taken under consideration.

Laws and Ordinances

In considering the fire protection and prevention needs of any community, it is essential that a thorough study be made of laws and ordinances in comparison with approved standards. This study should include the city building code, the electrical code, laws or ordinances on inspection of buildings, control of hazardous materials or fluids, construction of chimneys, roof coverings, exits, and all other related matters. Ordinances should be constantly improved to conform with the best present practice. In the majority of our cities and towns such important ordinances as the city building code are neglected often for many years, although building practice has steadily changed during the period since the adoption of the code. Proper fire prevention legislation regulating the various hazards that are encountered is most essential.

Structural Improvements

An important function of any practical fire prevention campaign is an effort to eliminate the conflagration hazard of the city or town. A careful study should be made of the congested district of the community, and dangerous conflagration breeders should be torn down or protected. It is possible to practically eliminate the conflagration hazard by work of this character. The protection of vertical and horizontal building openings and the installation of automatic sprinklers and other fire protection appliances should be encouraged. Special attention should be given to buildings in which people congregate, such as schools, churches, hospitals and theaters, to make sure that there is no severe life hazard. The fire



THE LARGEST SINGLE FIRE OF THE YEAR 1925, AS MEASURED BY MONEY LOSS

This wharf conflagration, which occurred in New Orleans in November, furnishes an argument for adherence to the National Fire Protection Association's regulations on piers and wharves. The fire traveled 1,300 feet before reaching a fire-wall. The picture shows the effect of fire on unprotected structural steel—a type of construction not infrequently referred to as "fire-proof"

protection of many of our public buildings is woefully deficient owing to lack of proper responsibility centered on an individual.

Public Education

Since our tremendous annual fire loss is very largely due to preventable fire causes, it is obvious that in any permanent and practical fire prevention campaign the public must be educated to the importance of the fire waste and their individual responsibility to it. A number of states now have an act requiring fire prevention education in all the public and private schools in that state. A carefully planned course of instruction is important; at least half an hour every two weeks should be devoted to the subject.

Fire Prevention Week, now generally observed throughout the country, serves as an important medium of bringing the fire waste problem to the attention of the entire community. A local fire prevention committee should, of course, plan an effective publicity campaign for that week.

It is important that throughout the year continual publicity on local fire hazards in fire prevention work be carried on through the press by addresses before the various civic clubs or by other means of gaining public attention.

Some Cities Now Actively Organized for Fire Prevention

A number of cities throughout the United States are now organized and are carrying on permanent constructive fire prevention activities. It is hoped that the increasing interest in this problem will eventually result in a very tangible reduction in the present tremendous waste. If each city but realized this responsibility to its citizens and to the country at large, and if in each city an intelligent effort was made along the lines indicated above, the results so long awaited would be accomplished. The information and assistance necessary to start a logical permanent fire prevention campaign is available. Its practical application will reduce our fire losses.

Salaries of Police Chiefs and Police Department Employees

THE following table has been made available for publication in THE AMERICAN CITY by the Chamber of Commerce secretary of one of the cities listed. The information was received during the month of December, 1925, in reply to a questionnaire sent by the Chamber of Commerce to the chief of police in cities of from 100,000 to 300,000 population:

	Chief's Salary	Asst. or Deputy Chief's	Matrons Salary	Captains No.	Captains Salary	Lieutenants No.	Lieutenants Salary	Sergeants No.	Sergeants Salary	Detectives No.	Detectives Salary	Patrolmen No.	Patrolmen Salary
Akron, Ohio	$4,050	....	$1,380 1,020	4	$2,640	5	$2,280	12	$2,150	6	$2,280	136	$1,860–$1,980
Albany, N. Y.	4,000	3,000	1,200	7	2,400	12	2,200	22	2,100	7	2,200	210	1,700– 1,900
Atlanta, Ga	4,000	3,000	1,560 780	5	1,980	6	1,860	12	1,770	30	1,740	251	1,560– 1,680
*Bridgeport, Conn	5,500	3,750	1,200	6	3,300	17	3,000	52	2,700	..	....	225	2,100– 2,300
Cambridge, Mass	3,750	....	884	7	2,750	10	2,500	13	2,300	..	....	178	1,600– 2,007
Camden, N. J.	3,000	2,340	900	4	2,220	..	....	15	1,980	10	1,980	135	1,380– 1,800
Columbus, Ohio	3,720	2,880	1,800	4	2,400	5	2,280	4	2,160	25	2,040	278	1,800– 1,920
Dallas, Texas	3,600	2,760	....	1 7	2,460 2,040	1	2,160	13	1,770	17	1,770	190	1,200– 1,560
Denver, Colo	3,600	3,000	1,800	8	2,700	..	....	19	2,160	36	2,100	272	1,740– 1,920
Des Moines, Ia	3,220	2,460	1,640	3	2,220	2	2,100	6	1,980	18	1,980	110	1,640– 1,920
Fall River, Mass	4,000	3,150	1,095	6	2,700	11	2,400	6	2,250	7	2,400	194	1,642– 2,007
Fort Worth, Tex	3,600	....	1,440	4	2,000	1	1,800	9	1,740	18	1,740	140	1,500
Hartford, Conn	4,950	....	919	1	3,850	6	2,798	12	2,332	12	2,465	266	1,916– 2,130
Houston, Tex	4,000	2,520	1,710	2	2,220	1	1,920	6 3	1,890 1,770	24	1,710	101	1,410– 1,470
Louisville, Ky	4,000	2,500	....	8	2,400	15	1,825	36	1,643	10	1,460	373	1,460
Lowell, Mass	3,500	2,800	1,050	..	....	6	2,250	9	2,100	..	....	176	1,825
Memphis, Tenn	5,400	4,800	1,500	3	2,700	5	2,400	9	2,100	18 2	2,100 1,740	160	1,440– 1,680
Nashville, Tenn	4,000	....	960	..	....	1 3	3,350 2,400	10	1,860	13	1,860	103	1,560
New Bedford, Mass	3,850	3,516	1,433	9	2,931	18	2,509	16	2,208	..	....	205	2,007
*New Haven, Conn	5,000	....	1,200	12	2,850	..	....	41	2,500	7	2,500	297	2,108
Norfolk, Va	3,420	....	....	6	2,315	2	2,175	35	2,000	..	....	239	1,500– 1,890
Oakland, Calif	5,400	....	1,920	1 3	4,200 3,600	5	3,000	20	2,640	10 15	2,760 2,640	260	2,160– 2,400
Omaha, Nebr	4,000	3,000	2,040	7	2,280	1	2,060	22	2,040	39	2,040	183	1,440– 1,800
Paterson, N. J.	4,200	....	1,400	5	3,200	2	2,800	11 21	2,620 2,500	14	2,420	180	1,900– 2,300
Portland, Ore	3,900	3,120	1,680	6	2,460	5	2,160	22	2,280 1,980	31	2,160	285	1,560– 1,980
Reading, Pa	2,400	....	....	1	2,100	1	1,860	9	1,800	6	1,800	101	1,440– 1,680
Richmond, Va	4,000	....	1,200	5	2,520	5	2,100	31	1,980	..	....	193	1,560– 1,800
St. Paul, Minn	4,000	3,255	1,516	5	2,475	3	2,088	9 17	1,968 1,896	35	1,968	221	1,836– 2,196
San Antonio, Tex	4,000	2,400	1,460	6	1,920	..	....	3	1,500	24	1,440 2,400	137	1,320– 1,440
Scranton, Pa	2,800	....	804	3	2,240	1 3	2,160 2,100	14	2,000	10	2,100	117	1,680– 1,920
Spokane, Wash.	3,104	....	1,350	1 2	2,244 2,118	..	....	8	1,860	11	1,860	68	1,440– 1,728
Springfield, Mass	4,400	3,300	1,100	3	2,585	13	2,365	13	2,255	1	2,695	185	1,879– 2,117
Trenton, N. J.	4,000	....	2,000	5	3,200	8 2	2,300 2,400	3 10	2,300 2,250	2	2,250	163	1,550– 2,100
Wilmington, Del	3,600	....	1,000	5	2,500	2	2,200	16	2,000	13	1,900	140	1,400– 1,650
Worcester, Mass	5,000	3,750	1,500	6	3,000	10	2,550	22	2,350	19	2,350 3,250	270	2,062
Youngstown, Ohio	3,600	....	1,200	4	2,220	..	....	7	1,980	12	2,040	66	1,800

*1926 figures.

Extensive Tests on Brick Pavements

United States Bureau of Public Roads Conducting Accentuated Wear and Abuse Test on Arlington Track

AN extensive investigation of brick pavements less than 3 inches in depth is being undertaken by the United States Bureau of Public Roads, which has agreed to make a field investigation in the southwestern section of the United States of existing pavements built with bricks less than 3 inches in depth where these pavements have been in service for a number of years. Further, the Bureau has also agreed to approve for tests and observation purposes a Federal Aid project or a section of a project using brick less than 3 inches if it is submitted to them by any of the state highway departments. The third phase of the investigation is the construction of a test pavement on the circular track at Arlington, using brick of various depths and subjecting this brick wearing surface to accentuated truck traffic to determine the relative resistance to the wear and abuse of traffic by these brick of different depths. This pavement has just been completed.

Construction of the Circular Track

The circular track at the Arlington Experimental Farm was built by the Bureau of Public Roads two years ago for the purpose of testing wearing surface materials. Tests have already been made on it for bituminous concrete and sheet asphalt pavement surfaces. The track is built in a circle of about 100-foot radius and on its center line is 1/10-mile in circumference. This base course is built of reinforced concrete of a very rich mix and is between 6 inches and 12 inches in thickness. In the two years that tests have been made over this pavement there has been no evidence of any failure of the base when it was cleared off prior to the construction of the brick pavement.

The track is built with a slight superelevation, and on account of its unusually heavy construction it does not enter as a variable in over this pavement thare has been no evidence materials. The track is 13 feet wide and has an area of approximately 1,000 square yards.

Construction of the Brick Wearing Surface

As the objective of this test is to determine the relative resistance to the abuse of traffic by brick of different depths, every possible variable was eliminated from the construction

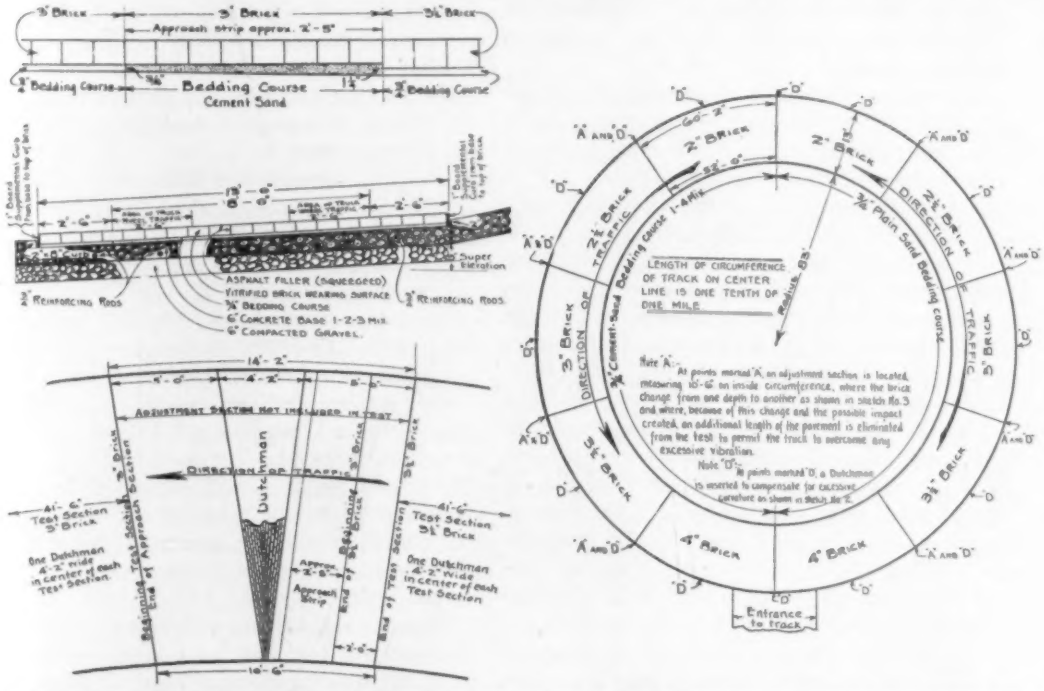


DIAGRAM SHOWING LAYOUT AND METHOD OF LAYING TEST SECTIONS OF BRICK ON ARLINGTON TEST ROAD OF THE U. S. BUREAU OF PUBLIC ROADS

PREPARING THE SAND CUSHION FOR THE ARLINGTON BRICK ROAD TESTS OF THE U. S. BUREAU OF PUBLIC ROADS

that might have its effect on the final result. To accomplish this, the brick were all ordered from one manufacturer and all of the vertical fiber, plain, wire-cut, lugless type 8½ inches long, 4 inches wide and varying only in the one dimension of depth. Asphalt filler applied by the squeegee method was used throughout the test.

Half of the pavement was built on a plain sand bedding course, and the other half with cement sand bedding course mixed in a ratio of one to four. Two sections of each depth of brick were constructed, one on the plain sand and the other on the cement sand bed, the bedding course in both instances being ¾-inch in depth.

On entering the track, there are two sections of 4-inch brick, the right-hand section being on plain sand and the left-hand section on cement sand. Proceeding around the track to the right, the sections are in order the 4-inch, 3½-inch, 3-inch, 2½-inch, and 2-inch brick on plain sand, and proceeding to the left the same brick on cement sand, thus bringing the 2-inch sections together at the far side of the track. Each of these sections of brick pavement is approximately 50 feet in length, measuring on the inside circumference of the track. Where a change was made from one depth of brick to another, this was accomplished by increasing the depth of the bedding course and making a slight incline over a length of about 2 or 3 feet. In this distance the bedding course is changed from the normal depth of ¾-inch to 1¼-inch, and on account of this extra depth, a certain amount of cement was added to the sand to make it somewhat more stable. While this is a very gradual slope and hardly discernible, it no doubt will affect the vibration of the truck used in the test, and on that account approximately 10 feet of the section was eliminated from the test where the brick changed from one depth to another. It is felt that this distance is sufficient to allow the truck to stabilize itself before proceeding to the next depth of brick.

In this 10-foot section is put a "dutchman" to compensate for the curvature of the track. It was hoped that one dutchman to each section of brick would be enough, but it was found that the radius was so small that it was necessary to put a dutchman in the center of each of the test sections. This was accomplished without in any case using less than half a brick and it is felt that the dutchman is equally as strong and efficient as the rest of the pavement.

Construction Difficulties

While the construction of the 1,000 square yards of pavement does not sound like much of a job, and is not in the course of a large highway project, yet all the difficulties of assembling materials and supplies in the construction of this little project were quite similar to those encountered on a large road job. The weather conditions were, of course, not as favorable as they would have been during the summer months, but, as the officials of the Bureau of Public Roads expressed it, "Brick pavements are built in all sections of the country during November, and this project would thus be typical of the average conditions met in the field."

There were only two days of rain during the construction, and as a sufficient number of tarpaulins were available to completely cover the track each night, there was no dam-

age done to the pavement during these rains. Excellent use was also made of a Hauck burner, which is a hand-operated kerosene blowtorch, and by having this constantly at hand, it was possible to dry out all of the brick that were found wet in the morning. This insured a good penetration of the filler, as well as almost perfect adhesion of the filler to the surface of the brick. All of the asphalt was applied at a temperature between 375 degrees and 400 degrees Fahrenheit.

The pavement was rolled with a 3-ton self-propelled tandem roller immediately after the brick were laid. This same roller was used to bed the sand dressing into the asphalt filler after it was squeegeed into the joints.

Method of Tests

The plan is to make the initial test of the pavement with a truck load of 3 tons, giving a gross weight of 4,500 pounds at each rear wheel, and to make 10,000 trips around the track with this truck, or, in case trucks can be spared, to use two or three of them to make the aggregate of 10,000 trips, which would equal 1,000 miles. The loading will then be increased to 5 tons, and after the same number of trips will then be increased to 7½ tons, which is the maximum loading allowed on the highways. As the trucks used for these loads weigh approximately as much as the loads themselves, the eventual gross load will be approximately 15 tons.

On the first series of tests, the regulation truck with solid tires in good condition will be used. If all sections of the pavement withstand these loads, the present thought is to use bad tires or narrow tires for the next series of the same load. If this does not break up the pavement, the Bureau will probably put chains on these trucks and, if nothing happens by that time, they will endeavor to work up some eccentric loading of the wheels that will produce an even greater impact.

It is expected that at least three or four months will be consumed in making the truck tests, as it takes approximately a month to make the 10,000 trips of one truck. This time would be proportionately reduced if more trucks are used.

Office Administration in Municipal Water-Works

By D. C. Grobbel

Chief Clerk, Department of Water-Supply, Detroit, Mich.

ADMINISTRATION means the conducting of the business under certain restrictions imposed by a governing body or by rules and laws made by others outside of the immediate body controlling the business. The method of administering the office of a city water department, therefore, depends upon the will or action of others than the administration itself; further, such administration must cover a vast variety of actions, so that it would be impossible to lay down any fixed rule for the purpose of setting a guide for those who form the administrative body. Under ordinary circumstances, in a waterworks, the administration is charged with providing detailed plans for carrying out and enforcing the rules and resolutions of the governing body, whether these rules or resolutions concern the financing of the department, the planning of new structures, increasing production, or changing distribution methods. Construction work may be planned, but to the office administration comes the problem of financing it. Methods of production and distribution may be adopted, but here, again, the office administration must determine the rate to be charged to the consumer for the water consumed, and thereby obtain the requisite funds to operate the plant.

Thus, office administration delves into every corner of a water department structure. To properly provide for the administration of all the functions imposed upon an administrator in conducting the business of a city water department, he must have an organization of employees, which, as far as the qualification of personnel is concerned, differs according to the different functions to be administered, although all are responsible either directly or indirectly to the administrator. Again, the details of the various functional organizations depend, not only upon the size of the municipality and upon the local laws or usages, but also upon the thoroughness and efficiency with which the plant is to be administered. Needless to say, a small municipality would not need as large a force for the purpose of accounting as a larger municipality,

nor would a slow-growing city need the same force of engineers, superintendents, and foremen in its distribution work as the faster-growing municipality. In the smaller waterworks, the chief executive can keep in personal touch with all details of office administration. His problems of construction, production, and distribution are few in number and his list of consumers is numbered by the hundred, but as the department grows and his problems of construction increase, he must transfer much of the administrative work to others. The details with which he formerly concerned himself are crowded out by the stress of more important matters. He can no longer make a personal inspection of the customer accounts and the details in the construction work under way, nor note the many small needs of improvement that are constantly present in a water-works plant. He is therefore compelled to allow other hands and other minds to carry out the policies of the department, enforce its rules, attend to the details of construction, arrange the financial affairs of the department, and deal with the public.

Departmental Relations

The relations of the office administration are manifold, but may be roughly classified as departmental relations and public relations. Departmental relations are those that bear upon the construction, production, and operation of the department. Here office administration must exercise its greatest effort to obtain efficiency and thoroughness. Construction must be planned to produce the greatest results at a minimum outlay of funds and at the same time be of such enduring character that replacements need not be made except at long intervals. Nor can the construction be of such a nature that it will prove unprofitable, or profitable only after a long time, during which time the interest charges on the amount of money invested for a great number of years offset any profit that might be made.

In this connection, it must not be forgotten that it is incumbent upon the office administration, unless otherwise provided by law and usage, to furnish the plans for the financing of the different construction projects. It is the office administration that determines whether the cost shall be borne through earnings of the department, or whether the department's credit shall be used for this purpose. And the office administration is frequently called upon to determine the nature of the bonds to be issued. If, however, such financing is determined by law, either state or municipal, the office administration is frequently in position, from its knowledge of the records of the department and its earning powers, to assist the public authorities in their work and be a means of keeping the bonded indebtedness of the department at a minimum.

Operation is part of the departmental relation and is most important from the office administration standpoint. Any interruption of operation is certain to bring down upon the heads of the office administration the wrath of an outraged public—be the interruption ever so brief. The office administration, therefore, makes every effort to secure adequate funds and efficient labor in order that there may be no failure in the water-supply of the municipality. Nor must these funds be spent lavishly. The office administration has its eye continuously glued to the page of records which shows the cost of each gallon or million gallons of water produced or distributed. Any deviation from what is thought to be the proper cost figure is run down, and if the excessive cost is caused by negligence or inefficiency, it is the office administration that must devise the cure. If, on the contrary, the costs are driven upward by the natural causes over which the operating force has no control, the office administration is compelled to provide means to meet the increase, either by providing more efficient methods of operation or adjusting the rates to provide a larger amount of revenue.

Public Relations

Office administration is more obvious in its relations to the general public or the water consumer. While office administration works behind the scenes in its departmental undertakings, its work with the consumer or the general public is done in view of every one. It is to the office administration that application is made for pipe lines, services, and meters. Complaints of low pressure or lack of water come to the same body. Payment for water or other charges are made to it. In fact, as far as the general public are concerned, they know very little of the department, except through their intercourse with the office administrative body. To the public the administration is the department and the administration is held responsible for all shortcomings that the department may have, for all mistakes that the department may make.

It is therefore necessary that the office administration should present its best side to the public. Fair in its dealings, courteous in its treatment, forbearing under abuse—these are necessary attributes for success in its in-

tercourse with the public. It is, however, to be noticed that in this intercourse with the public the rules of the department are also to be interpreted fairly, so that neither the department nor the consumer shall suffer. The relation of office administration to the public is mostly concerned with the securing of a proper return for the service rendered by the department, and it is well for the office administration to bear in mind the view-point of the consumer when making any adjustment of the rate structure. Although the department may have a monopoly of the service in a particular municipality, it certainly does not follow that the charges should be based upon this monopoly, but rather upon a fair estimate of the needs of the department for operation and maintenance, sinking fund, interest, and a fair allowance for the ordinary betterments.

Bearing the foregoing in mind, the department will be able to sell itself to the public, and again, although the department may have the monopoly in the community, it still needs to make friends of the consumer and the public. This friendship is necessary for the purpose of financing the department by bond issues, for the purpose of creating a favorable attitude among the citizens and the officers of the community, and for the purpose of placing the intercourse between consumer and office administration on an amicable basis.

No specific methods of office administration have been presented, since its activities, to a very great extent, depend upon the laws and usages of the different municipalities or localities. Moreover, office administration changes more frequently in its attitude toward historic rules than any other division of a water department. In so doing, the office administration is following, or possibly at times, anticipating, the public mind. Where once the operation of a water department by a municipality was deemed revolutionary and looked upon as an enterprise to be conducted by private capital, now this same operation is considered a municipal governmental function, similar to such other functions as those of the fire department, the tax assessors, or the police. Again, the rapid development of cities and their suburbs in recent years, and the attendant enlargement of commercial and industrial life have made it necessary for the office administration to plan many additions for the department, and change its method of accounting and billing, its plan of rates and financing.

This is more evident in the larger cities, as may be witnessed in Detroit, where, in the past five years, it has been necessary to construct 910 miles of pipe and change the method of making assessments for this pipe, three times. New ways of handling suburban pipe extension had to be developed, and additional costs of production in the shape of filtering the water had to be absorbed. A new rate was established, changing from the minimum with a flat rate to a modern three-step rate and service charge. Payments which had heretofore been made only at the main office were arranged to be made at branch banks without cost to the department or the consumer. Where the department had only made a service tap, it now lays the service to the lot line, and the day is not far distant when this service will be brought into the building.

All of these changes were made without dislocating any operations of the department. However, the work of the office administration is not by any means finished, for, only recently, a new meter reading and customer accounting system was adopted, by which it is hoped to give better service to the consumer and reduce the cost to the department.

In the new Detroit system there are thirty-six reading districts, and every other day in the month will be a final payment day. Further, the new scheme brings the reading date within seven days of the bill delivery date, instead of the former average of six weeks.

Incidental to the foregoing, the scheme provides a method of internal audit of receipts, a better control on delinquents, and a larger output of bills at a less cost, per account, the latter no small item when it is realized that Detroit has approximately 210,000 meters in service.

ACKNOWLEDGMENT.—From a paper read before the Central States Section, American Water Works Association.

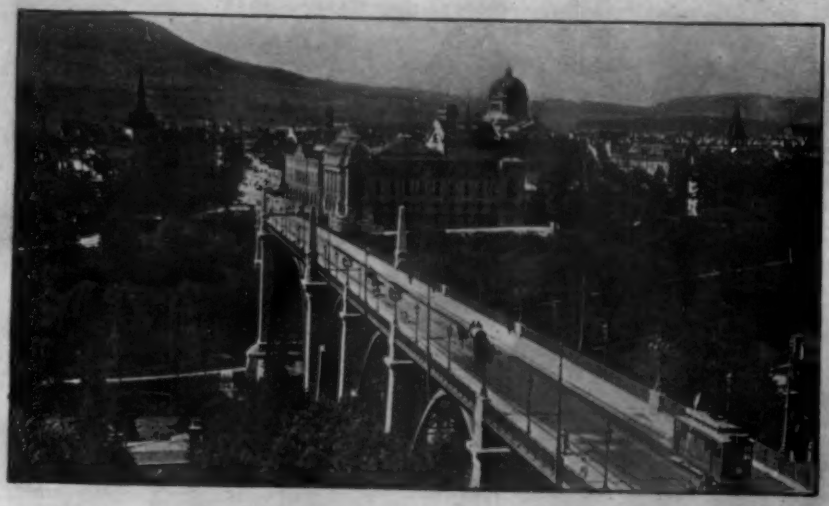
Now the American Municipal Association

AT the second annual meeting of the Association of American Municipal Organizations, held in Chicago on December 17 and 18 last, a constutition was adopted making the organization a permanent one and changing its name to The American Municipal Association. The headquarters of the Association will continue to be at Lawrence, Kans., with John G. Stutz as Executive Secretary.

Acting upon the suggestion of Samuel Baker, City Clerk of London, Ont., and Secretary of the Union of Canadian Municipalities, membership in the Association has been made open to any state or provincial municipal organization in North America in which the municipality pays the dues for membership.

A verbatim report of the conference and round tables was taken and will shortly be published and offered for sale by the Association.

Swiss Cities Take Pride in Their Artistic Bridges and



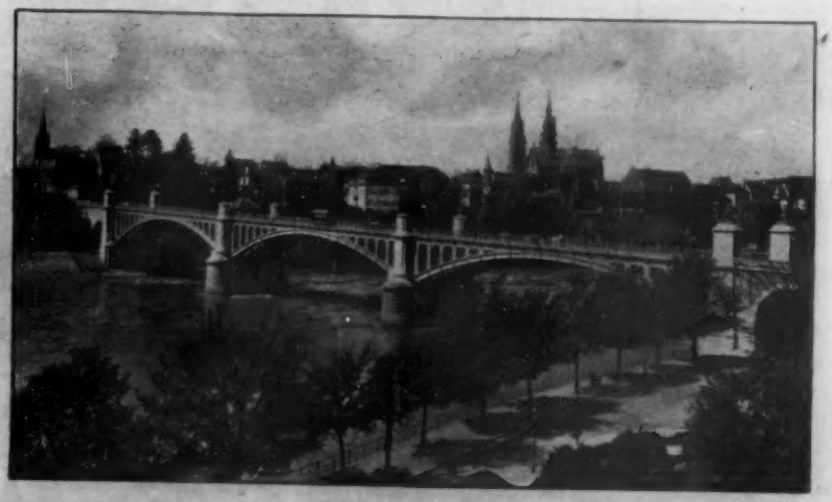
BERNE

LUCERNE

OUCHY

in the Beautification of their River and Lake Fronts

BASLE



GENEVA

WEGGIS

New Street-Lighting System for Santiago, Chile

Latin-American City Adopts Modern Types of Lighting Units

SANTIAGO, the capital city of Chile, South America, is removing its street lights, which are of the type used in the United States in 1870 and is installing modern units throughout the entire city. Such a change-over means that Santiago will probably be the best-lighted city in South America. More than 8,000 lighting units will be required for the work, and it is estimated that the system will represent an investment of several million dollars. None of the lights will be of less than 4,000 lumens rating, and the maximum will be 15,000 lumens.

ALAMEDA AVENUE, SANTIAGO, CHILE, SHOWING THE STRIKING CONTRAST BETWEEN THE OLD TYPE GAS LANTERNS AND THE NEW PENDANT NOVALUX LIGHTING UNIT

For this work the International General Electric Company is supplying the lighting units, some of the brackets, the transformers, and the control equipment. The Union Metal Manufacturing Company is supplying bracket-arm standards and the single- and double-bracket ornamental standards.

There will be nine substations, in which will be the constant-current transformers. Each lighting unit will be operated from an individual series transformer, and each unit will be provided with a dome refractor. Depending upon the character of the street, the refractors will be either symmetric or asymmetric. The ornamental double-arm standards will be used in the main business streets, and the single-arm standards in the secondary business streets and more important residential districts.

The installation, involving 220 miles of cable, will be made by the local central station companies. Some units have already been installed by Santiago, a cable order having been sent for 200 so that they might be installed previous to the recent visit of the Prince of Wales to that country. The total equipment includes 2,710 bracket light units for the more sparsely settled area, secondary streets, and residential districts, 1,450 large-size pendant type ornamental lanterns, 4,120 Novalux No. 6 pendant lighting units, 2,710 General Electric brackets, 3,935 Union Metal single-bracket arm standards, 370 special Union Metal standards, 210 Union Metal double-bracket arm standards, 26 six-light cluster Union Metal standards, 56 constant current transformers, and 8,400 individual series transformers.

NATIONAL CONFERENCE ON STREET AND HIGHWAY SAFETY POSTPONED

The 1926 meeting of the National Conference on Street and Highway Safety, the dates for which had previously been announced as February 16-17, has been postponed to March 23, 24, 25. The meeting will be held under the auspices of the United States Department of Commerce at the call of Secretary Hoover. Information regarding the program can be obtained from the Secretary of the Conference, Ernest Greenwood, Department of Commerce, Washington, D. C.

Laying Cast Iron Mains—Organization and Methods

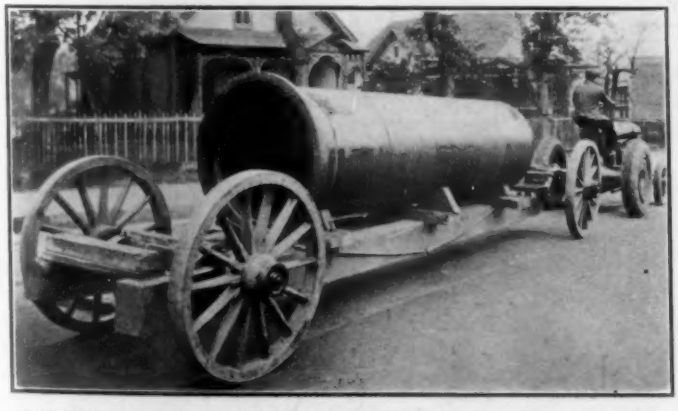
By Homer V. Knouse
Construction Engineer, Metropolitan Utilities District, Omaha, Nebr.

THE installation of water and gas mains in the Metropolitan Utilities District of Omaha is done almost entirely by District forces, the only exception during the past four years being certain lines of 36-inch and 48-inch diameter which were handled by contract. Following the purchase of the water plant by the city of Omaha in 1912, it was found that a considerable amount of extension to the distribution system of the water plant was necessary, and inasmuch as men trained in laying pipe were a part of the organization, the installation of water-mains by District forces was a natural course of procedure. With the growth of the city, and to meet the increased demands for extension following the war, more gangs were organized by selecting foremen from among the men in the older gangs, and by training calkers and pipe men under the older foremen. With the acquisition of the gas plant in 1920, still further demands were made upon the Construction Division and the needs were met by the same method of expansion.

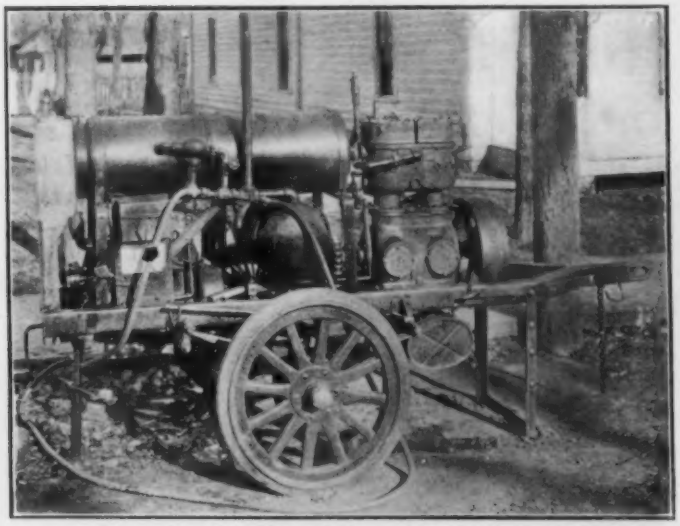
A TRAILER USED FOR GAS SERVICE WORK

Foreman, calkers, pipe men, and a few laborers are considered regular employees of the District, and during the winter or at times of decreased activity, the total number of men employed is decreased by laying off common labor which has been employed on the various gangs. At such times regular employees are used on inspection, main flushing, repairs, and incidental work.

Installation of water and gas mains is a specialized class of work, requiring foremen and skilled labor not generally available in the labor market, and where it is possible to hold together the nucleus of a trained organization from year to year, it seems evident that cheaper and better work can be done than under contract system where organizations are built up and torn down, not only from year to year but from month to month. And, since an organization can be built at the beginning of a season with knowledge of the total amount of work to be done, with the assurance that it can be employed nearly full time, a more efficient personnel will be retained. Under this plan there are always available a considerable number of men for emergency work in the distribution system or at the various plants; the work is more closely under the control of the District, and changes in plans are most easily made. Since each foreman is interested in the operation of the system, as well as in its construction, he is in effect an inspector for the District, is on the alert to note changes in



OLD HORSE-DRAWN WAGON ADAPTED TO USE AS A TRAILER BEHIND A FORDSON



A SMALL GARDNER AIR-COMPRESSOR USED FOR BREAKING PAVING, CALKING JOINTS AND SPRAY PAINTING

the plans which would increase the effectiveness of the work he is installing, and is able to meet difficulties or obstructions which he may encounter of which the Engineering Department had no record or knowledge at the time the plans were made.

Planning of Jobs

A factor greatly affecting the progress and cost of work is a careful planning of the order in which the various jobs shall be done. Moves of machines or gangs should be as short as possible; trench should be opened ready for the gang to begin work; pipe and specials should be on the ground, and the gang foreman should have complete maps in his hands when ready to begin work. Since ditching machines, backfillers, and all other special machinery are operated as units separate from the pipe-laying gang, and usually serve several gangs, it is necessary that they be routed separately. In general, the plan of work is made with respect to the ability of the ditchers to open trench, and as many gangs as are necessary to keep up with the machine are routed behind the ditcher. Where backfillers, paving breakers, tampers, concrete mixers, or other apparatus is necessary, it is ordered to the various jobs so as to keep these machines occupied as nearly as possible full time, and without delaying the other work.

Machines Replace Hand Labor

Machines have, of course, displaced a great deal of hand labor, but no new apparatus is purchased until it is clearly demonstrated that a saving can be effected. Ditching machines are used of such size as to handle the work most economically. The backfillers in use are built on a Fordson tractor, and have demonstrated their ability to refill trench cheaply, and have added advantages in a moving speed of ten to twelve miles per hour and in being always available for use as tractors with only a few minutes' time for removal of boom.

Air-compressors are being used to a greater extent each year for breaking paving and tamping refilled material, and it is believed their use will continue to increase.

All machines are operated as independent units, both in dispatching and in accounting. Items of cost, including depreciation, operating labor, repair labor, repair parts, gasoline, oil, and supplies are accounted for, and the cost per unit of work done computed, to be used in figuring prices to be applied the following season.

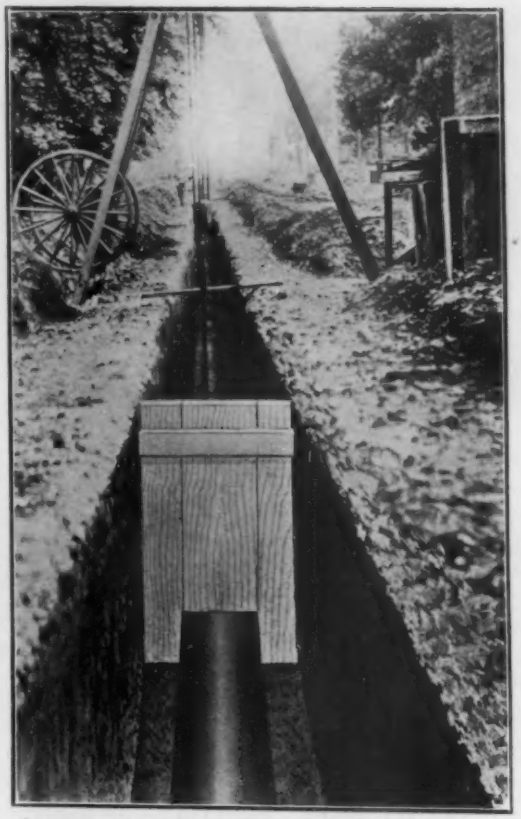
Close contact is maintained at all times between the heads of the division and the foremen in charge of gangs and operators of special machines. Foremen are urged to obtain low cost without sacrificing quality of work; safety of workmen and safety of the

A FORDSON BACKFILLER IN SERVICE

public must be given careful attention; and every measure must be taken to guard the convenience and good-will of the public.

Proper Backfilling

Proper flushing or tamping of trenches must be done if settlement of paving is to be avoided, and the cost of refilling a trench in an unpaved street on account of settlement after the construction gang has gone is always too high. In all possible cases backfilled material is thoroughly flushed, and for this purpose a pipe nozzle 5 feet long is used on the flushing hose. By this means it has been possible to saturate all refill and to eliminate practically all pockets of dry material which might later settle and cause damage. On steep grades it has not only been found difficult to properly flush trenches, but washing out of material during heavy rains causes a large expense. By building timber bulkheads at intervals of from 50 to 200 feet this trouble has been largely eliminated, and since these bulkheads may be made of second-hand flooring, shiplap or plank, the expense is small.



A BULKHEAD USED IN TRENCHES ON STREETS WITH STEEP GRADES

Warning Signs

Since all the work of the Construction Division is upon public thoroughfares, the necessity for the protection of the work so that accidents to the public may be avoided is evident. Barricades painted in patterns to afford maximum visibility are provided and are so designed as to be quickly and securely placed and be conveniently transported from job to job. Provision is made on these barricades for the attaching of red lanterns in such a manner that they will not be easily displaced. Lantern rods are provided with a large metal flag with the word "Danger" thereon, which serves as a warning during the day as well as a support for a red lantern at night. "Slow-Danger" signs are provided to be set back towards approaching traffic in congested districts, and red flags are provided for use on the ends of projecting loads on trucks. A rule for the placing of red lamps has been adopted which provides lanterns not more than 5 feet apart on a line at right angles to traffic, 50 feet apart parallel to traffic on main thoroughfares and in a congested district, and 100 feet apart elsewhere.

FOLDING BARRICADES WHICH HAVE PROVED THEIR VALUE

Where necessary to open trenches across streets, care is taken to provide the maximum possible width of crossing, and every effort is made to refill such excavation at the earliest possible time. Where trenches are in unpaved streets, a small cheap sign painted yellow and bearing the words "Danger—Soft Trench" is placed at intervals of about 200 feet, and has been found very effective in keeping vehicles out of such trenches. These signs are made from ⅜-inch boxing lumber with a short piece of lath

AN INEXPENSIVE "SOFT TRENCH" SIGN

nailed on for a support, are dipped to give the ground color and then stenciled both sides with the words. The cost is about 4 cents each, and no effort is made to recover them, as it is believed that they will remain in position until the trench is safe.

Upon completion of each job a report is made by the field engineer showing every possible item which might at any time in the future be of interest. The location of every special in the line is noted; distances both from property line and from curb; the locations of all structures which may be encountered during the work, such as other water and gas mains, telephone conduits, sewers, etc., are shown on the report, which is forwarded to the engineering department for posting on the various office records.

Foremen's Conference

Realizing that special training of all men in the division is necessary if best results are to be obtained, a foremen's school or conference was started about a year ago for the instruction of foremen and others who have supervisory charge of work. These schools are held Saturday afternoon from 2:00 o'clock to 4:00 o'clock and all foremen are required to attend. Matters are discussed relative to the work, information is given as to what progress has been made during the previous week, foremen describe any particular difficulty they have had in the course of their work and what measures were taken to meet it, and a general training course is carried out. Among the subjects that have been discussed are: best methods of doing various classes of work; safety work affecting workmen and the public; first aid, with particular reference to resuscitation from gas asphyxiation and from shock; procedure in case of an accident either to a workman or to the public, such as obtaining names of witnesses and data pertaining to the manner in which the accident happened; attitude of employees toward the public to promote good-will; and numerous other subjects brought up either by the management or by the men themselves. As an example, one meeting was devoted to a discussion as to the proper shaping of cutting and calking tools, the proper size and shape of frost and concrete bars, and as a result of this discussion standards were adopted which have not only simplified the work of the tool department, but have caused much better and more uniform equipment to be sent to the men on the job.

These meetings are very informal and a general round table discussion by the men interested is obtained. Outside features on various subjects pertaining to the work or to related subjects, suitable moving pictures and stereopticon views are contemplated in order to give greater diversity to the meetings and to make them more interesting to the men. While some of these foremen are engaged entirely on gas work, others on water-main work, and still others handle both classes of work, it has been found that a splendid cooperation has been brought about and that the time spent is very much worth while.

ACKNOWLEDGMENT.—From a paper read before the Iowa Section, American Water Works Association.

The National Clean Up and Paint Up Campaign Bureau Headquarters Moved to New York

The National Clean Up and Paint Up Campaign Bureau, which has been operated from St. Louis for the past thirteen years, has discontinued its St. Louis offices and has just opened new national headquarters at 243 West 39th Street, New York.

R. W. Emerson, who previously has served as Executive Secretary of the Bureau, will have charge of the new offices in New York, and will extend a hearty welcome to all visitors. He will also be glad to correspond with city officials and civic organizations desiring suggestions for clean-up and paint-up campaigns.

Solving a Sewer Problem in Richmond, Indiana

A Neat Sewer Constructed with Vitrified Tile Invert and Concrete Super-Structure

By D. B. Davis
City Engineer, Richmond, Ind.

A PROBLEM of some interest arose in Richmond, Ind., when it became necessary for the city to extend a trunk sewer from its terminus at the corporation line to a disposal plant about one-half mile distant. The trunk sewer was of 54-inch equivalent diameter and carried the combined sanitary and storm drainage from an area of approximately 150 acres. The sewer terminated in an overflow manhole from which the storm-water during heavy rains overflowed into a natural dry watercourse. The dry-weather flow was conducted through a 15-inch vitrified pipe from the overflow manhole to the disposal plant.

The construction of the overflow manhole was such that the inlet to the 15-inch pipe was directly opposite that of the outlet of the 54-inch trunk sewer. This faulty construction allowed the sand and gravel which entered the sewers from street inlets to be carried into the 15-inch pipe. Inasmuch as the sewer was laid on a grade of 0.0025, the washing of sand into it constantly gave trouble by stoppage. When this occurred, the raw sewage overflowed into the open ditch, creating a most unhealthful condition.

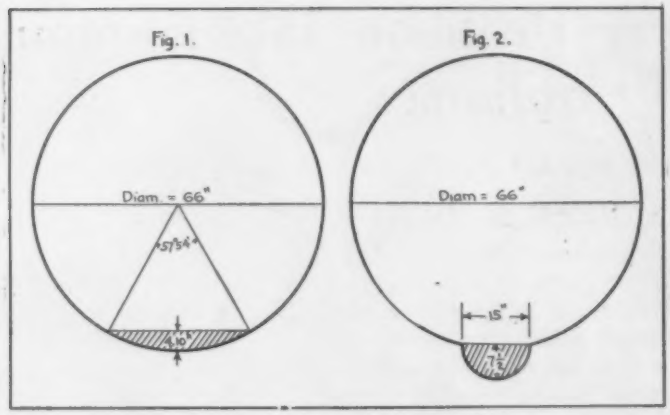
To overcome this situation, the city ordered plans made for continuing the trunk sewer to the disposal plant, and the construction of a better-designed overflow manhole.

Design

A sewer of 66 inches diameter was decided upon as being adequate to carry the storm flow for all future needs. The problem then resolved itself into selecting a shape of sewer line which would give the maximum velocity for the dry-weather flow, that is, a velocity which would be self-cleansing. The grade at the disposal plant being fixed, the slope of the new sewers had to coincide with the old. By observation, it was found that the present normal flow in dry weather did not fill the 15-inch pipe half-full. Consequently, a dry-weather flow which would half fill a 15-inch pipe was used for computing velocities.

Computations were made to determine the comparative difference in velocity of that volume flowing in a 15-inch channel pipe and

PROGRESSIVE CONSTRUCTION OF CONCRETE AND TILE SEWER



FIGURES USED AS BASIS OF DESIGN

the same volume flowing in a 66-inch diameter circle. Figure 1 shows the regular circle, and Figure 2 shows the channel pipe used as a dry-weather flow area. Following are the computations for each design:

Area of 15-inch channel = 0.613 square feet. This area in a 66-inch circle gives a depth of 4.1 inches.

Using Kutter's formula and solving for the flow in the 66-inch circle, we have

$$S = \text{Slope} = 0.0025$$

$$R = \frac{\text{area}}{\text{wetted perimeter}} = \frac{0.613}{2.77} = 0.22$$

$$C = \frac{41.6 + \dfrac{.0028}{S} + \dfrac{1.81}{n}}{1 + \left(41.6 + \dfrac{.0028}{S}\right)\dfrac{n}{\sqrt{R}}} = 83.3$$

$$n = 0.013$$

$$V = \text{velocity } C\sqrt{RS} = 83.3$$

$\sqrt{.22} \times .0025 = 1.95$ c. f. s. obtained in the 66-inch circle.

Solving for the 15-inch channel pipe, we have

$S = 0.0025$
$R = 0.25\ D = 0.312$
$C = 91.2$
$V = C\sqrt{RS} = 91.2\sqrt{0.312 \times 0.0025} = 2.54$ c. f. s. obtained in the channel pipe.

Inasmuch as the comparative velocity values would remain constant regardless of the value used for "n." and as it was the opinion that a glazed vitrified channel pipe would give as low a value as concrete, Figure 2 was adopted. With this information and a knowledge that the excavation was one suitable for monolithic concrete construction, the design shown in Figure 3 was evolved.

Construction Procedure

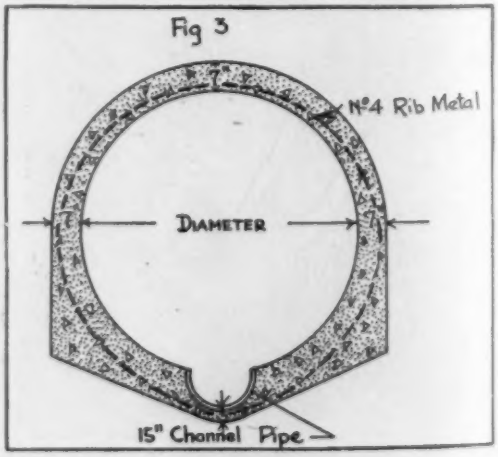
The contractor's procedure of construction is of interest. The excavation was in a shallow cut and was done by teams and slip scoops, the fine grading being done by hand. Concrete mixed in the proportion of 1:2:4 was then deposited in two layers at the bottom of the trench. Upon the first layer, mesh reinforcing rolled to the required diameter was placed, while upon or into the second layer a 15-inch vitrified channel pipe was embedded. The line and grade for these pipes were controlled by an overhead line attached to "Tee" boards.

One hundred lineal feet of half-circle Blaw steel forms were used, one-half being used for the invert and one-half for the arch. The invert forms were placed directly upon the channel pipe line and braced. The reinforcing mesh was pulled and held into its proper position while concrete of wet consistency was poured and spaded into place. The arch forms were moved ahead on rollers onto each previous day's invert and poured.

Gravel was hauled and piled at regular intervals close to the work. The average wheel for concrete was about 125 feet. A gasoline-driven Jaeger mixer was used for the concrete.

Following is a table showing the labor hours required for the average performance of the different operations:

	Labor Hours
Fine grading by hand	0.30
Laying 15-inch channel pipe and placing mesh reinforcing	0.14
Setting forms, including moving, etc.	0.70
Pouring concrete, including wheelers, shovelers, and finishers	1.79
Total per lineal foot	2.93



Behavior of Concrete Pavements Under Service Conditions

By H. Eltinge Breed
Consulting Highway Engineer, New York City

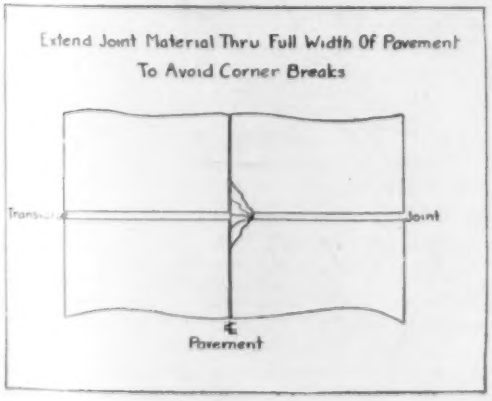
JUST 60 years ago the first concrete pavement of modern times was built in Inverness, Scotland. Other concrete pavements built within that decade are still giving service in Edinburgh. The earliest recorded one in the United States is at Bellefontaine, Ohio, laid in 1892. The following year other streets were laid, all of which are still in active service. Fourteen cities of over 100,000 population have 30 miles or more of concrete pavement 30 feet wide, while four of them have over 100 miles each, Los Angeles topping the list with over 300 miles.

CONCRETE LAID IN 1893 IN BELLEFONTAINE, OHIO, IN 5-FOOT SQUARES

What Produces Satisfactory Pavements?

Where pavements are giving satisfactory results, we discover that attention has been given to certain fundamentals, the repetition of which would seem monotonous were it not proved necessary by the negligence one still sometimes sees.

Foundations must have uniform density and a smooth, even surface. If they are of soil which gives a large volume change with the addition of moisture, they should be rolled very little. If subject to capillarity or generally unstable, they should be strengthened by a blanket coat of granular material such as cinders, slag screenings, coarse sand, gravel, etc.

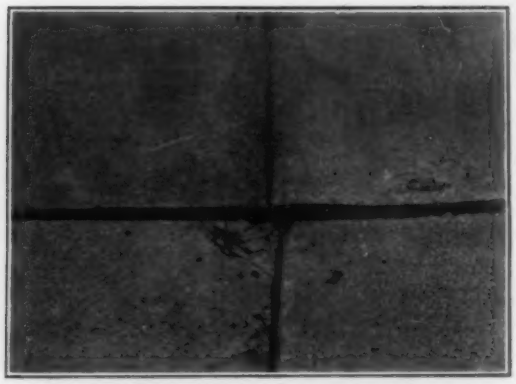


Drainage from overhead water is generally assured in city work, for the roofs, walks, gutters, and the pavement itself are the umbrella which protects the whole. Underground waters must be cut off and taken away, especially in side-hill work.

The design of the pavement slab must be adequate. There is one point which is not taken into consideration with sufficient frequency. A pavement can be constructed thinner near the curb and gutter on wide streets and where the sides are used for parking than would be safe for an area continuously subjected to rapidly moving loads.

Selection of Aggregates

Selection of aggregates requires a knowledge of the properties of the sand and the stone. In concrete greater appreciation of this has been indicated in the last ten years and we are securing better results. It is often possible, where the local aggregates are not of suitable character for the surface, to build in two courses simultaneously, using the poorer aggregates in the bottom and making the top surface of either cement and screenings or of cement, sand, and stone of better quality. An example of two-course work is Chapel Street, New Haven. This pavement was of the Blome Granitoid type, built in 1908, over 3,000 feet

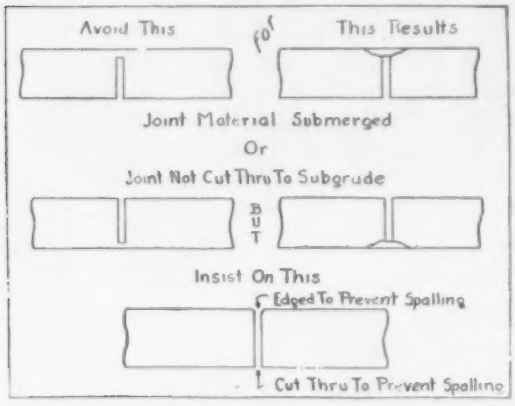


A BREAK IN THE PAVEMENT AT THE JUNCTION OF TWO EXPANSION JOINTS

This break was caused by the fact that the bituminous joint filler was not carried to the junction, thus permitting the concrete to close around the end of the filler and develop local stresses when expansion occurred

long on the main thoroughfare from the east and probably the heaviest-traveled street in the city. The pavement is 6¾ inches thick, the first 5 inches being a 1:3:4 concrete covered by a top 1¾ inches thick composed of 1 part cement to 1½ parts of clean crushed trap rock having a maximum size of ¼-inch with dust removed. The proper design of the concrete requires an appreciation of the interrelation between the size and grading of aggregates, the consistency of the concrete, the mix, and the strength.

When the aggregates are clean and of durable character, the strength of the concrete

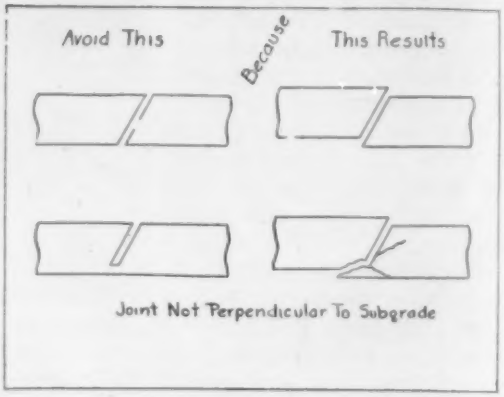


depends on the water ratio. The time of mixing must be at least 1 minute, and 1½ minutes gives increased strength.

Finishing and Curing

Finishing is a most important factor, for a smooth pavement has to resist only a moving load, while a pavement which is uneven has to endure also the highly destructive force of impact. Proper finishing includes cutting through and rounding all joint spaces.

Curing, with all its protective measures, must be adhered to. Integrity of the slab as a monolith is necessary. The first tendency of concrete after being laid is to dry out and contract. This change of length always produces cracks unless the slab is free to move. Its own weight ties it down to the subgrade, and the resultant friction precludes its drawing itself together. When the stress thus generated is greater than the strength of the



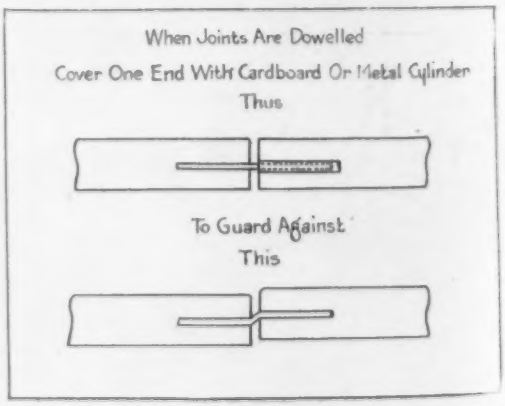
concrete, the concrete ruptures and cracks appear. By keeping the surface of the pavement continuously wet, the tendency to contract is lessened and the slab retains its integrity. The gain in strength may be accelerated by the use of a two per cent solution of calcium chloride.

Complete specifications are needed to insure good results. It is far better to use a standard specification in its entirety than to concoct one with a paste pot and shears.

Some Causes of Unsatisfactory Results

Some unsatisfactory results may be attributed to the following causes:

Cold-weather work has been followed by a



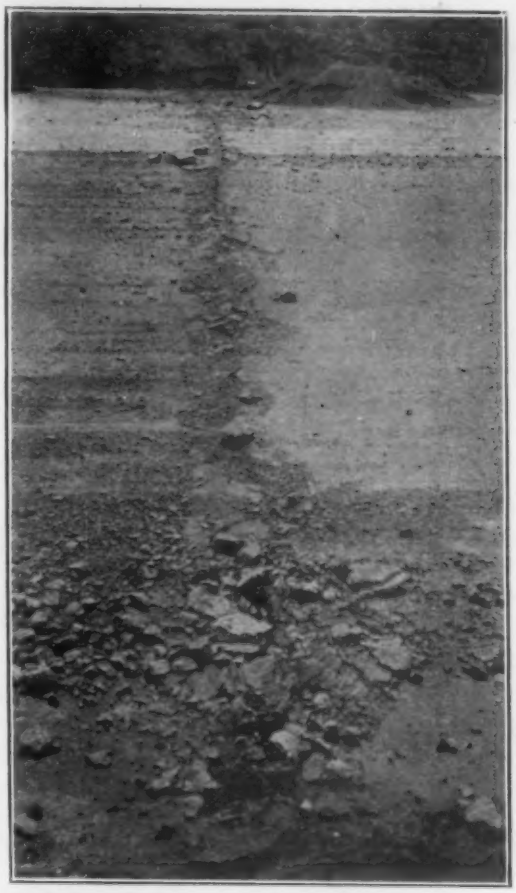
string of bad results. There is no gain in strength when the air temperature is around 40 degrees Fahrenheit. There is slight gain at 50 degrees, while real strength comes at around 70 degrees Fahrenheit. Concrete laid at 40 degrees or below will not gain strength until the temperature rises, so if it goes over winter and traffic is allowed on it before the gain comes, the concrete will become shattered. Where cold-weather work has to be done, it can best be accomplished by heating the aggregates, by using calcium chloride, and by protecting from weather. Good concrete may be obtained under cold-weather conditions by using aluminite cements. In curing, sufficient time should be allowed for gain of strength. Better concrete can be secured in summer with 7 days' curing than in November with 21 days' curing.

Another source of trouble is the using of too much water in the concrete. One case that I investigated showed a secondary concrete of little strength directly under the slab proper, while the concrete in the slab was porous and absorbent of water and would inevitably be disrupted by expansion from moisture and frost.

Concrete around railway switch points where it is subject to freezing and thawing from the use of salt by traction companies shows a marked deterioration over the rest of the pavement. This condition was very evident around the switch points of the trolley tracks in Homer, N. Y., while the rest of the pavement was in perfect condition. Vitrified brick, granite sets or granite blocks around the switch points will give better life than concrete will. Where the upper part of the grout comes out, the space can be protected by pouring the joints with a bituminous material.

Another cause of poor results is the use of dirty and unsuitable aggregates. In a village in northern New Jersey where a fine quality of trap rock is available, sand was specified that should be equivalent to 80 per cent of Ottawa, with the proviso that it could be used with an increase of cement if it went as low as 60 per cent of Ottawa. Needless to say, a few months after the job was completed, there were sections where one could kick out the coarse aggregate. It is dangerous practice to try to use a sand that is under 100 per cent of the strength of Ottawa sand unless you are designing the mix on the strength basis, fineness modulus, water ratio, etc., and have enough control to know that any change in aggregates is taken care of by redesigning the mix.

Coated stone or gravel is another source of trouble. Many jobs show distress from this cause, for when the aggregate is dirty, the mortar forms a honeycomb structure around the individual pieces which is weakly resistant of stress. Many an area can be found where the pavement is breaking up from this cause. One half-mile section on the Merrick Road near Oakdale, Long Island, N. Y., built in 1914, is a notable example of this.



THE RESULT OF BURYING AN EXPANSION JOINT
The joint filler was covered with a thin layer of concrete, which was disrupted as shown when the pavement expanded

Poor joint construction, or no joints at all, is one of the greatest sources of trouble, both early and small and large and late. Concrete, by its very nature, has the characteristic of extensibility, increasing and decreasing in length. Dr. W. K. Hatt, Purdue University, Dr. A. T. Goldbeck, former Chief of Tests, Bureau of Public Roads, Professor Alfred H. White, University of Michigan, and other scientists, have shown definitely through their researches that there is expansion, that is, in-

crease in length, in concrete pavements. Some studies have shown that the tendency of concrete is to hold some of each increase in length over subsequent periods of contraction, so that part of the expansion is accumulative. When no expansion joints are provided, very high stress is set up. The concrete either expands laterally up to its elastic limit or ruptures along its weakest part. The rupture may not appear the first year, but frequently shows the third and fourth. After some experiences of this kind which showed first in blow-ups, concrete construction was changed to allow more expansion, and an extra joint 1½ inches wide was provided every 750 feet. Work done in 1917 with this allowance is excellent to-day, while pavements built a year or two earlier with less expansion have showed a decided tendency to crack.

Other sources of trouble with joints are: (1) the submerged joint which on compression spalls out on top; (2) the joint which is not perpendicular to the pavement surface and which under longitudinal pressure rides above the adjoining slab; (3) the dowel joint which, unless one free end is provided, causes the dowel to buckle and spall out the concrete or raise one slab above the other; and the failure to carry a joint entirely through the concrete, which on account of concentrated pressure shatters the concrete.

THE SAME JOINT SHOWN ON PAGE 151, AFTER CONCRETE HAD BEEN CUT OUT FOR REPLACEMENT

The bending of the steel dowels at the joint line can be clearly seen, showing the extent of the force exerted by the expanding concrete

After everything else is as good as it can be, the pavement may be spoiled by overfinishing, which draws the poor or fine parts of the sand to the surface and either brings out check cracks or causes the top surface to spall off.

Reinforcement

I have found, for the same expenditure, no other guarantee of success so certain as the use of small amounts of steel to strengthen the concrete. During the stresses set up in the concrete by the contractions due to drying out during the curing period, small quantities of steel well distributed beneath the surface hold the slab together and limit the formation of fine hair cracks. Later, if cracks do appear, the position of the steel, when a sufficient amount is used transversely, limits them to transverse cracks that merely break the slab across and prevents those disastrous diagonal cracks leaving V-shaped corners that under impact split the slab into fragments. The steel acts further as an offset to fatigue stresses. Wherever it has been used in actual practice, the results have been good. Where it has been used on test roads like the one now being built at Syracuse, the tests have shown that the pavement slabs containing it have had greater strength than those of plain concrete.

Syracuse Test Road

This Syracuse road is an interesting experiment. It was built at Syracuse, N. Y., last summer and finished in September under the auspices of the New York State Highway Department under immediate supervision of Colonel William M. Acheson, Division Engineer. The information derived will benefit not only New York State, but every engineer who is interested in giving his community good concrete pavements. The motive for the Syracuse road was the realization that in many cities streets would have to be widened and strengthened and that much resurfacing would soon have to be done. Pavements that have already been resurfaced with concrete have been satisfactory in all cases that I know of, but they have left many doubts in the minds of engineers about what would prove most truly economical in design and procedure.

The Syracuse Test Road, formerly known as Syracuse Cicero State Highway, was built in 1914 of 1:1½:3 concrete, 16 feet wide, 4¾ inches thick on the outside edges and 6¾ inches thick at the center. This pavement was still giving good service, but some of the areas were badly cracked. The idea in resurfacing at this time was to utilize all of the pavement

which still had a salvage value. The old pavement is an example of some that was built with an exceptionally fine sand of low strength. A traffic count shows 10,000 vehicles over it in 24 hours. The resurfacing has consisted of placing a top course with sections 450 feet long of the following thicknesses: 2¾, 3½, 4, and 4½ inches. Reinforcement of three different weights was used with each thickness. In addition to the resurfacing, a new strip 8 feet wide was placed longitudinally to give a pavement 24 feet in width. The whole job is over a mile in length. The 8-foot slab was laid in thicknesses of 6 inches, 7 inches, and 8 inches and reinforced with various weights of reinforcing, some of it placed both top and bottom. There were also some unreinforced sections in 7- and 8-inch thickness. Steel fabric and bar mats were the type of reinforcing used, but there were no combinations of the two. Edge strength on the resurfacing and new slabs was secured in the steel fabric mats by using heavier wire at the edge and also with sheets of metal wider than the slab turned down along the edge so that a heavy member is placed at the bottom. Additional end strength for the new slab was secured by cutting a sheet of metal in two and using one-half at each end of the slab with the heavy members running across the pavement. This method means using only one kind of steel on the job. It is an excellent method of reinforcing for loading at unsupported corners, for, as the bending moment increases, the area of concrete and steel increases, thereby increasing the resisting moment. Bar mats were also used, both single and double layer, in part of this work. They were assembled on the ground.

Wooden forms made of two 2-inch strips bolted together so as to break joints, and of the height required for the section, were used. Iron straps were fitted to the sides and they were placed and held by iron pins set in holes drilled in the concrete. The proper position was secured by the use of blocks around the pins, while the top elevation was secured by

ONE OF THE BADLY BROKEN AREAS ON THE SYRACUSE TEST ROAD BEFORE RESURFACING

shims. A template was used so that the joint material could be made to fit the surface. Corrugated paper joint material composed of two layers of corrugated paper with a hard paper core was used. Later the core was pulled out and then the two sides could be easily lifted. After the concrete had hardened, the joint was poured with a bituminous mastic. The paper joint had a metal cap on the upper side to strengthen it.

Problems It Is Hoped to Solve

Some of the problems which it is hoped will be solved when the tests are made on this road after next spring's thaws are: Will the cracks in the old pavement come through and cause disintegration of the new surface? By how much greater depth of new surface will weaknesses in the old pavement be corrected? What is the minimum thickness on which the new surface can be designed? How much strength is gained through different quantities of reinforcement? How much steel is it economical to use?

When these and other questions are answered, city engineers can be assured of getting good concrete pavement designed and built to yield the most in value for the money expended.

ACKNOWLEDGMENT.—From a paper presented before the American Society for Municipal Improvements, at Des Moines.

CINCINNATI AND KANSAS CITY APPOINT CITY MANAGERS

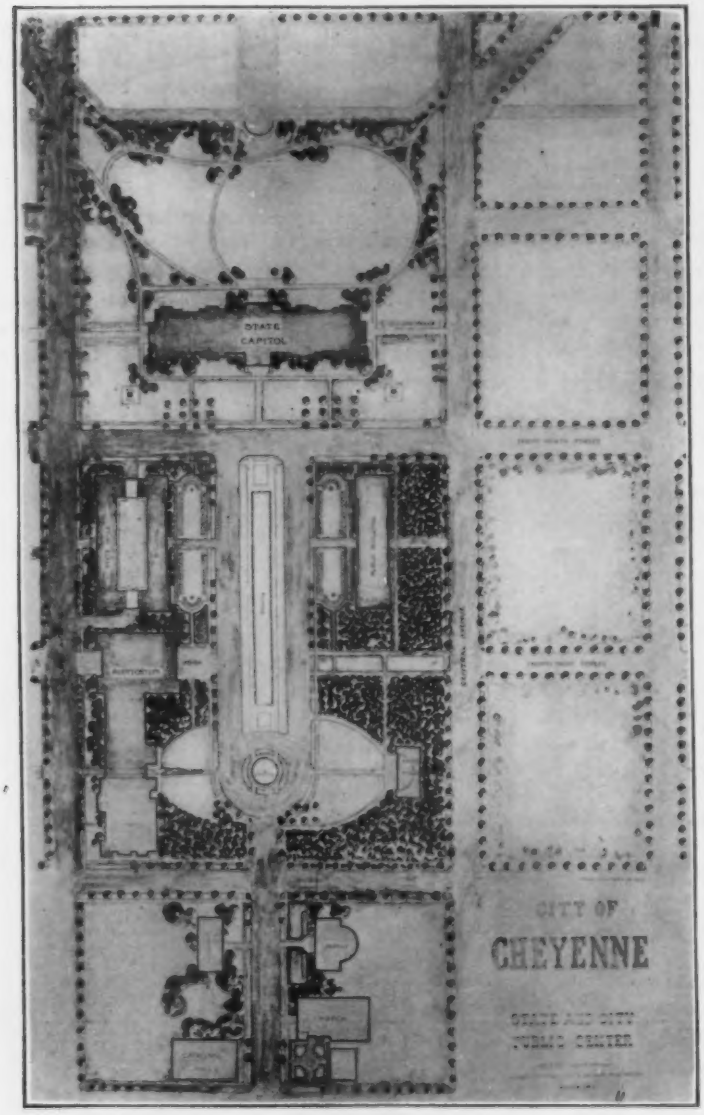
With the announcement of the inauguration, on January 1 and April 1 respectively, of commission-manager government in Cincinnati and Kansas City, comes the news from those municipalities of the engagement of their first city managers. The Cincinnati appointment has gone to Lieut. Col. Clarence O. Sherrill, a West Point graduate with an admirable record in the World War, and more recently Director of Public Buildings and Parks in the District of Columbia. The Missouri municipality has chosen one of its own citizens, Judge H. F. McElroy, a member of the County Court in 1923 and 1924, and for some 30 years active in the real estate business in Kansas City.

A City-Planning Study for a State Capital

By S. R. DeBoer
City Planner and Landscape Architect

THE physical plan of a city should be based on the means of livelihood of that city. Some cities are primarily tourist cities or health resorts, others are factory cities, mining towns, agricultural centers or trading centers, and every one of them should have a city plan to fit its peculiar needs. Most cities have more than one mode of living, and a city is fortunate if it has a great number. Large metropolitan cities naturally become a combination of the types represented in the smaller cities.

Throughout the world the government centers usually distinguished themselves by their imposing character. The plans for Cheyenne as capital of Wyoming are calling for a treatment that will make this city one of the beautiful capital cities in the country. Cheyenne is not only a government center, state capital, county-seat, and government office, but also an important railroad center. It is located at the crossing of the main continental east-and-west railroad as well as the main north-and-south railroad. In addition to that, eight important highways enter the city.



The city plan for Cheyenne is of interest because it includes a thorough study of the resources of the city and tries to point the way for developing them. In connection with this, climatic data are presented that show the high percentage of sunshine, a mean annual rainfall of 13.99 inches, and crops that can be grown in the surrounding district. A special study is made of the growing of sheep and wool production in the Cheyenne district as compared with other sections of the country.

With its famous frontier history and its wonderful climate, the city is also a tourist city. The proximity of Fort Russel, a large military reservation, makes it a military center, and as a main point on the continental air mail line it is developing into an air transportation center.

On the resources and the means of livelihood of the city as well as on its history and population growth the physical plan of the city is based. Stress is laid on the fact that the city is the capital of a rapidly growing state. Capitol Avenue leads from the railroad station to the Capitol. It is proposed to widen this avenue in front of the State House to an imposing city and state center. Around this center it is planned to group the state office buildings, as they become needed from time to time. The present Capitol building will be the climax of this group of buildings. Two existing churches and the library are part of the plan.

At the lower end Capitol Avenue runs into the tower of the railroad station. Here it is proposed to consolidate the two railroads and arrange a park as an approach to the city.

New arterial traffic lines are indicated on the plans and a separation is made between residential streets, major streets and business streets. Through the south and the west end of the city runs a small creek with high banks and this has been made use of in a proposed circular parkway around the whole city. This parkway is to have an informal character and on the north and west sides of the city will become a forest that will act as a windbreak.

A detailed study for the parks that lie in a belt around the north side of the city was made. The great necessity for shade trees made it essential to present a detailed study of tree planting along all streets. The carrying out of this tree-planting system may have to depend on private initiative, but under proper direction such a system would become a great asset to the city.

The plans include a preliminary zoning plan indicating all industrial, commercial, and residential uses, height district and density of population regulation.

Special stress is laid in this study on the necessity for making Cheyenne an attractive residential city. A government center, especially, must have attractive residential areas. The people of a state want to look up to their capital city, want to have good reason to be proud of it.

Making the Playgrounds Safer

By O. W. Douglas

THAT adequate provision of park and playground space in cities should be treated as a real necessity from the standpoint of safety to children is generally acknowledged by safety bodies, police authorities, and others interested in child welfare. From all accounts received there seems to be no doubt that areas contiguous to playgrounds have fewer street accidents to children than other areas not so favorably situated. But the playgrounds themselves must be made safer, and must serve as a training field for safety in the community outside, and in the home.

By sending out a large number of questionnaires to park and recreation officials in the leading cities of the United States and Canada, a fair share of replies were received, though many did not report. However, reports received give a total attendance of approximately 35,000,000 for 1924, from which we glean the following:

Fatalities	4
Total accidents on apparatus	202
Total accidents in games	60
Total accidents in pools and on beaches	26
Miscellaneous accidents	36

The 202 accidents on apparatus may be classified as follows:

Swings	44
Slides	41
Teeter ladders	22
Horizontal ladders	21
Seesaw	15
Slanting ladders	14
Lawn swings	13
Horizontal bars	5
Giant stride	4
Ocean wave	2
Parallel bars	2
Merry-go-round	..
Miscellaneous	19

The four fatalities were in two cities; two each. Two were on the large lawn swing, almost unknown outside Chicago and suburbs. One was on a slide while the child was violating a rule as to its proper use, and the other in a pool.

Doubtless the rather large number of accidents occurring on swings and slides is due to the fact that practically every playground in the country has one or many of each of these devices, and that they are used by such hordes of children. Conversely, there are comparatively few of the large lawn swings and

teeter ladders in use, and these by very small numbers of children, hence the ratio of accidents is very high, and the writer would recommend that their use be abandoned. The horizontal ladder shows a rather high rate, but it seems to be in favor, and if it were reduced in height from 7½ to 6 feet, most of the danger would be eliminated, and a useful piece of equipment would be retained.

The giant stride, ocean wave, and merry-go-round, with tremendous capacity and popularity, show a wonderful record. By the use of light-weight non-metallic ladders on the giant stride, accidents may be practically nil. In fact, the proper use of almost all standardized equipment will result in very few accidents.

The school authorities of Highland Park, Mich., made an interesting survey to determine the attitude of the school patrons concerning the use of equipment. More than 2,500 replies were received. About 60 per cent advocated the retention of all equipment now in use. As to the use of different pieces of apparatus, the vote reached as high as 92 per cent on some items.

One city reports 200,000 attendance using 324 pieces of apparatus with only two accidents reported. Detroit has a particularly interesting report, showing about 8,000,000 attendance with only 37 accidents, 13 of which were on apparatus, and no fatalities. During the same time 92 children were killed on the streets and 2,093 injured.

The Most Dangerous Age

It may be interesting to know that the most dangerous age is from three to nine, as a group. Within this group the peak is at the age of five and there is a sharp falling off at six, the beginning of school life. The most dangerous age in pools and beaches is from 16 to 19. A most favorable record in life-saving by regular life-guards is shown. One city operating five beaches reports 400,000 attendance, with 72 rescues and no drownings during bathing hours when guards were on duty. In fact, most drownings occur during off-hours—early morning, or at night when beaches are unguarded and officially closed.

The legal phase of accident liability has been the source of some considerable worry to school and recreation officials. Summing up briefly a large number of laws and court decisions in many states, it may safely be said that the almost universal trend is toward holding the officials not liable except where actual unquestionable negligence can be shown, and then only when defective equipment or other dangerous conditions are shown to have been reported to the proper officials, and a reasonable time given for correcting the conditions. The Recreation Commission of Springfield, Ill., is experimenting with liability insurance. It remains to be seen how this will work out. As there is no legal liability except in case of negligence, this insurance feature might be interpreted as placing a premium on negligence. In some states the courts have held that the premiums on such insurance cannot legally be paid. In one of these decisions the court clearly stated that there is no liability on playgrounds for accidents except in case of negligence and that it is not only a proper function of the authorities to equip the grounds but, in fact, a duty.

Importance of Inspection and Instruction

It appears that the proper way to reduce accidents to the minimum, both on the grounds and in the communities outside, is by an intelligent and persistent effort along the following lines:

Inspection.—All equipment should be inspected daily and reports made. In case of defect in apparatus or any unsafe condition on the ground, the apparatus or obstruction in question should be removed at once or made unusable until repairs can be made. This should include glass, stones, rubbish, or other débris offering any hazard. Since a great many accidents occur in baseball games, all bats should be taped, and inspected daily.

Instruction in Use of Equipment.—The right use of each piece of apparatus may be taught by means of signs or posters and by the instructors or attendant in charge. There are a right and a wrong way to use them all, as is true of any other device in daily use. Even with care there will still be some accidents, but their reduction will certainly be quite noticeable.

Instruction in Safety on Streets and in Homes.—Children may be taught how to avoid accidents not only on the grounds but on the streets and in the homes. An organization of Junior Police or Safety Committees to patrol dangerous crossings at busy hours has proved very successful where tried. Details of useful methods may be secured from the National Safety Council, Chicago, or from the Playground and Recreation Association of America, New York.

ACKNOWLEDGMENT.—From a paper delivered before the 1925 Convention of the American Institute of Park Executives.

Surface Treatment of Gravel Roads with Asphaltic Oils

By J. T. Bullen
Parish Engineer, Caddo Parish, La.

THE engineer's problem to-day is not alone to design new pavements, but to conserve the investment previously made in ordinary gravel and macadam roads. By gravel roads is meant sand-clay gravel, composed of from 50 to 70 per cent water-worn pebbles combined with 30 to 50 per cent of clay and sand, with the sand predominating to some extent. The sand should have some coarse grains and the clay should have good binding qualities.

THE MOORINGSPORT ROAD IN MOORINGSPORT, LA.
This road was graveled in 1919 and regraveled in 1922 with pit-run and washed gravel. The first application of oil was in March, 1922, using 0.38-gallon per square yard at a cost of 6 cents per square yard, or $593 per mile. The second application was on July 27, 1922, using 0.124-gallon per square yard at a cost of 2.4 cents per square yard, or $251 per mile. Maintenance on this section for 1925 was $162 per mile, with the official census showing 1,000 to 1,500 vehicles per day

In Caddo Parish, La., gravel and macadam roads have been building since 1912. The seasons are nine months of summer and three months of winter, the average winter temperature being about 45 degrees, and the average summer temperature about 83 degrees, though the temperature frequently goes down to 16 degrees in winter, and stays above 90 degrees for days at a time in summer, often remaining from 95 to 100 degrees. There is little or no snow or ice, and frost does not penetrate to any depth. One-quarter of the roads of the parish lie in the flat bottom-lands of the Red River of the South, and three-quarters lie in the hills, with occasional grades up to 8 and 10 per cent. The annual rainfall is about 54 inches, and the precipitation sometimes amounts to 16 or 18 inches a month.

Notwithstanding the 54 inches of rainfall, there are frequently dry spells lasting for many weeks and even months. Such dry spells are sometimes followed by torrential rains, amounting to three, four, or even six or eight inches in 24 hours. In the dry spells, the clay-gravel ravels and gets exceedingly dusty, and on steep grades the torrential rains will easily form gullies in the surface.

Add to the climatic difficulties a traffic increasing at the rate of 100 per cent annually, and it becomes clear that an untreated gravel will not sustain traffic for long nor be an economical surfacing. This was realized in 1913, and it is believed that Caddo Parish was the first locality to apply heavy asphaltic oil as a surface treatment for clay-gravel roads. In August, 1913, the first oil was applied. All of the mileage to be treated had been completed from six months to a year and was pretty thoroughly consolidated and smoothed out. First, the gravel was very thoroughly swept with a rotary steel broom, which generally

ANOTHER SECTION OF THE MOORINGSPORT ROAD
This section is clay-gravel surfaced, oiled in 1920, and not re-oiled since that date. This is an exceptional case, but illustrates what fine results can be secured

removed from ⅛ to 3/8 of an inch of fine pebbles, sand and clay and deposited it in windrows on the shoulders of the road. Hand brooms of a type used on city streets were also used to clean any part of the surface not thoroughly cleaned by the rotary sweeper. Oil was then applied at the rate of ⅓- to ½-gallon per square yard at a temperature of 225 to 300 degrees Fahrenheit and was immediately covered with the sweepings previously removed from the surface.

Method of Oiling

One-half of the road was treated at a time, the other half being left open for traffic, and although 18 or 20 men followed closely behind the distributors, covering the oil with sweepings, some vehicles would get on it and pull strips of oil from the surface before it could be covered with the sweepings. The distributors' nozzles, one or more, would occasionally become clogged and cause skips, all of which had to be touched up a few weeks later, but in 30 to 60 days' time, travel had ironed out the oil into an almost perfect surface.

The first oiling was done in August, and in September there was 16 inches of rain, which did not damage the surface in the least. It continued in good condition during the winter of 1913 and the spring of 1914. At the end of twelve months, with the exception of a few breaks, it was still in good condition, and an auto traveling 50 miles an hour could raise scarcely any dust. In about fifteen months the broken places of the surface began to show to a considerable extent, and in each break in the oil a chuck-hole was forming. In 18 months the general surface was very rough.

The freight on the oil made it expensive, and the cost of distribution by contract seemed higher than the parish could afford. A few years later it was found possible to procure the same class of asphaltic oil from Baton Rouge, La., at a lower price and with much lower freight rate, so that real oiling began.

When I say oiling, I do not mean the usual coating of light cold oils which are frequently used as dust-layers, or even those oils slightly heavier which require several coats to form a surface. It has been my belief from the inception of this work that to get the asphaltic surface on the gravel quickly with the least labor was the true objective. Consequently, from the first we have used heavy asphaltic oil such as the grade known in the market as Standard Binder A or Texaco macadam binder. Generally, we have used Binder A, the analysis of which is as follows:

Spec. gravity at 77° F.	996/1.010
Flash—open cup °F.	390/400
Flash—Elliott °F.	350/365
Spec. viscosity at 25° C. (77° F.)	No flow
Spec. viscosity at 100° C. (212° F.)	24/37
Float test at 32° C. (90° F.)	360/390
Loss at 163° C. (325° F.) 5 hours	(1.0/3.0% 20G)
Penetration 100-G 5 sec. 77° F.	.....
Penetration of residue 25° C. (77° F.)	Too soft
Float test of residue at 50° C. (122° F.)	112/118
Penetration 200 G. 1 min. (32° F.)	.....
Penetration 50 G. 5 sec. (115° F.)	.....
Melting point (ring and ball) °F.	.....
Asphalt to 100 penetration	85/90%
Soluble carbon bisulphide	99.9%
Soluble 86 naphtha	84/86%
Ductility	.....
Fixed carbon	12/14%

The consistency of this asphalt is such that it takes considerable heat to get it out of the tank-cars. This is accomplished, however, by connecting a steam line to the coils provided in the cars, and after the steam is applied for about ten or twelve hours, the asphalt will flow by gravity into the concrete storage tanks or can be pumped into the distributors. The concrete oil reservoir has steam coils in the lower part into which live steam can be turned when it is desired to withdraw asphalt to the distributors.

The Personal Element Important

It takes an observant, conscientious, and painstaking foreman to get the best results, and a complete record of each tank distributed should be kept. In that record should be noted the comparative character of cover as to fineness, how many days of dry weather preceded the treatment, and every condition of weather, surface, or oil which might have an effect on final results. With such a record, the failures should gradually be eliminated.

It is quite easy to apply too much oil, and without careful checking of the surface covered it is difficult to determine from the foreman's report whether ⅓- or ½-gallon per square yard has actually been used.

Details of Treatment

For the successful treatment of gravel roads it is necessary to have, first, a surfacing material bound so thoroughly together that when it is swept the gravel or stone remains in place and only a small part of the binder can be swept out, leaving slight crevices for the oil to get its bond. A gravel with binder too sandy is almost sure to fail, because it cannot be swept clean without loosening the surface. It is essential to get the surface well consolidated by traffic before applying oil, so that the gravel will not ravel under oil.

Apply only sufficient oil to completely cover the surface. The first application generally requires between ⅓- and ½-gallon per square yard. Later applications generally require about ¼-gallon per square yard.

It would probably give better results if the oil could be left uncovered for 12 to 24 hours. Unfortunately, however, we have few roads over which to detour traffic. Consequently, we cover the oil immediately after distributing it. A gang of men follow the distributor, casting back on the road the fine gravel, sand, and clay previously swept from its surface.

It has been found that these sweepings make an excellent cover, as they contain particles from ¼-inch diameter down to fine clay. In casting this material on the oil, it is well to cast it in lines parallel with the center and not transversely. The cover must be in quantities sufficient to prevent vehicles from picking up the oil.

After the first application there will be no sweepings, therefore cover will have to be hauled in for subsequent treatment. We sometimes ship in a coarse sand for this purpose and sometimes use a fine pea gravel or broken stone with the dust left in. The stone is prob-

SECTION K OF THE ARKANSAS LINE ROAD

This road is built of a mixture of pit-run and washed gravel. It was oiled in June, 1922, at a cost of 4.7 cents per square yard, to a width of 14 feet, costing $382 per mile, using 1/3-gallon per square yard. It was re-oiled in December, 1923, at a cost of 4 cents per square yard, using 0.205-gallon per square yard, at a cost of $325 per mile. The road surface was maintained for 1925 at a cost of $76.50 per mile

ably to be preferred, though we find that sand, graded from fine to coarse, serves excellently for the purpose.

I have even seen oil covered with stiff red clay, and to my surprise it ironed out in good shape. The clay is not desirable for several reasons, one of which is that it leaves no grit on the surface to reduce slipperiness. As a matter of fact, we find that our oiled roads are not slippery, as the cover composed of sand and small pebbles or stones gives it a good, almost non-skid surface.

Repairing Breaks

In repairing the breaks in the oil we used Standard cold patch or Texaco cold patch, which costs about 16 cents per gallon in barrels. This we mix with small stones and allow it to cure for a few days, so that volatile oils may escape, and this material is spread cold and tamped in place after cleaning out loose material from the holes and painting both the bottom and sides of the holes with cold patch or some other thin asphaltic oil.

Renewal Coats Necessary

Don't begin using oil on your roads unless you can and will afford to apply a renewing coat of about ¼-gallon per square yard at intervals of twelve to eighteen months, and prepare to begin patrolling oiled roads as soon as they are oiled. The little breaks must be touched up with oil by hand pouring pots or with cold patch as soon as they appear.

There is no question of the economy of oil surfacing. We are compelled to use a soft marble for macadam roads, a material which under traffic of one to four thousand vehicles per day would wear into deep ruts and holes in two or three months unless protected by an oil mat. With the oil surface the same material does sustain this traffic for years at a time with practically no loss of material and no rutting. We have some macadam surfaces which have been built over five years within 3½ miles of the court-house at Shreveport, a city of 75,000 inhabitants, and carrying heavy oil-field traffic, and they have been maintained in good condition for less than $500 per mile annually, and with no additional rock. Several coats of oil have been applied, and sufficient oil has now been applied to cause some waviness in the surface. A little later the surface will be scarified slightly, re-rolled and re-oiled.

Cost Data

The Louisiana Highway Commission has been keeping a careful check of traffic on the State Highway and has stated that the maintenance cost on untreated gravel roads amounts to about $600 per mile annually. Notwithstanding this expense for maintenance, traffic is wearing away or winds and rain are carrying away about one inch of gravel per year, estimated to cost $1,000 per mile per year, or a total cost of approximately $1,600 per mile per year. With the oiled surfacing, the $500 per mile, or less, maintenance charge is the total annual cost, because the gravel cannot wear away, blow away, or wash away.

Then consider for a moment the saving which oiling effects for the users of the road. Information from university tests and actual costs in several parts of this country indicate that the saving to automobile users in gas, oil, and tires, effected by a paved surface in comparison with an ordinary gravel surface, is at least 1½ cents per mile and even 2 cents per mile. I am convinced that, as compared with a loose gravel surface such as we have in Louisiana during our long dry spells, the savings effected by oil surfacing must be at least 2 cents per mile.

We keep careful cost accounts on all of our oiling, and we find that for five or six years there is but little variance in cost. It runs from 5 to 8 cents per square yard for the first treatment, or $500 to $800 per mile on an 18-foot surface. These costs include $30 per day for the use of the oiler, also the cost of sweeper, labor, foreman, truck, and covering material. The cost varies with the length of haul, the length of the stretch to be oiled, and some other variable factors. We sometimes take the oil over 40 miles from town and apply it at not to exceed 8 cents per square yard. If we could continue this work over any regular period, using the equipment each day, we could reduce these costs considerably, but we oil or re-oil only a mile or perhaps two or three miles in one job and then go perhaps to a point 50 or 60 miles away where the next oiling is necessary.

TYPICAL COST SHEET FOR OILING

Ida—Missionary Road Oiled—Outfit No. 2, July, 1925
Station 00 to Station 244 — 4.62 miles
Roadway 12 feet wide — Total 32,533 square yards

RECAPITULATION COST

Trucks and drivers	$75.15
Oilers and drivers	366.68
Sweeper and drivers	201.10
Labor cleaning road and covering	328.49
Oil (13,700 gallons)	1,438.50
Foremen	66.69
Total	$2,476.61
Total square yards oiled—total miles (4.62)	32,533
Total gallons oil	13,700
Gallons per square yard	0.421
Cost per square yard	0.0761
Cost per mile	$535.88

Note: Hauled from Shreveport—40 miles.

Experiments with Curbing

We have recently tried the experiment of curbing a macadam road and oiling it, to see how long we can maintain it in good surface. We were led to try this because almost invariably the oiled surface begins to get ragged at the edges, and more repairs are called for there than on the remainder of the surface. This has been completed only about one year, so it is too early to say much about it except that it looks as though the job would last for some time, and certainly after a few years it should make an excellent base for some higher asphaltic type of pavement.

ACKNOWLEDGMENT.—Prepared from a paper presented at the Fourth Asphalt Paving Conference, Detroit, Mich.

Successful Incinerator in Small Residential Community

Floral Park, N. Y., Builds and Operates a 20-Ton Unit

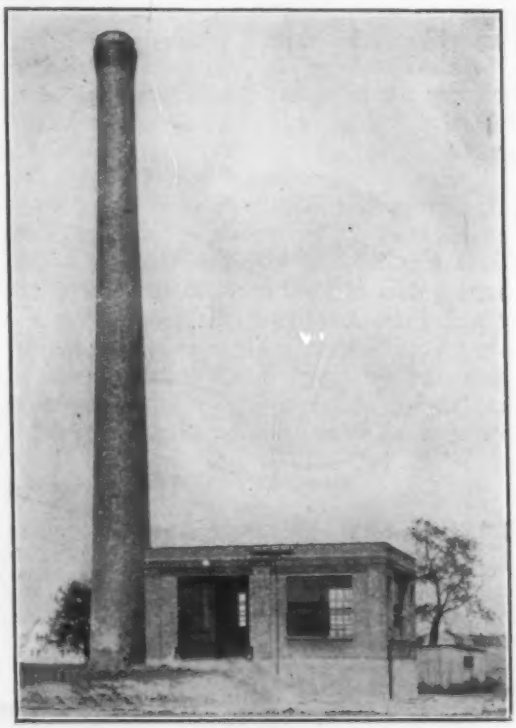
FLORAL PARK is a picturesque Long Island suburb, populated by commuters who work in New York City. Dumping of rubbish and garbage became a nuisance in the community, so it was decided to build an incinerator. The incinerator, which was built by the Rust Engineering Company, Pittsburgh, Pa., from designs by the Balmer Corporation, of New York City, is located on a site already set apart for a park and playground. From the start the project has had the active cooperation of the Lions Club, whose foresight and generosity have made it possible to acquire an additional 18 acres adjoining the incinerator. The old dump has already been closed down and all signs of its former activity and purpose are disappearing. As a natural consequence, property values have increased in the immediate neighborhood. The clean calcined ashes and clinker from the incinerator are being used in improving road conditions in other districts.

Refuse is collected and delivered to the plant by a private contractor, who at present collects all of the garbage and rubbish from a community of over 10,000. All of the collected material is destroyed in a single 8-hour shift, the only labor employed being one fireman and an assistant. Negotiations have been concluded on behalf of the adjoining village of Bellrose for the delivery of its refuse to the Floral Park plant.

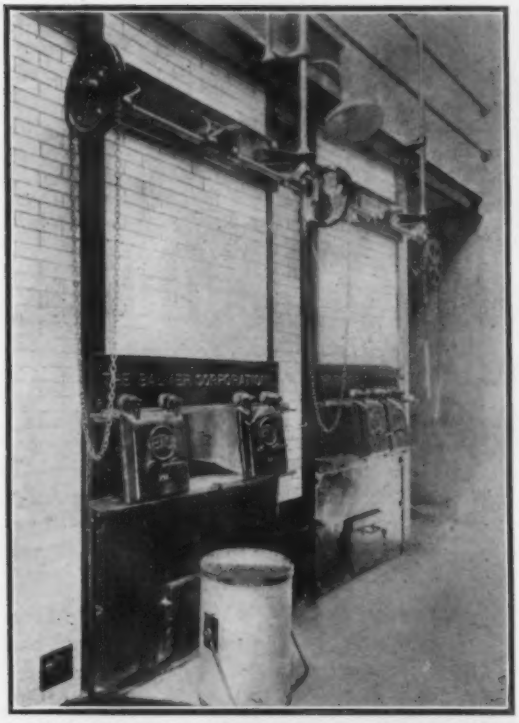
The Plant

The incinerator furnace is built 14 feet below ground, which leaves the dumping floor 5 feet above ground level. The access and exit ramps are therefore short and inexpensive and take up little space. Although provisionally formed with cinder tamped down hard, the ramps will eventually be finished in concrete. The trucks pass through the building and dump through hatchways in the floor. Concrete curbs crowned with channel iron guide the truck wheels clear of the hatch doors.

The storage bin into which the refuse falls from the truck is of the enclosed type and has a capacity of 40 cubic yards, which is considered ample for a full day's supply of 20 tons of refuse. The bin is built of Armco iron instead of armored concrete. The Armco, besides being a better transmitter of heat, is



EXTERIOR OF THE BALMER INCINERATOR AT FLORAL PARK, SHOWING PROXIMITY OF RESIDENCES



FRONT OF THE FURNACES OF THE BALMER INCINERATOR AT FLORAL PARK, LONG ISLAND

impervious to butiric acid and other corrosive elements in garbage which develop in storage, especially under heat.

As the storage bin is suspended from the dumping floor directly over the combustion chamber of the furnace, considerable heat is communicated by radiation to the floor of the bin, and through it to the stored refuse. The production of fumes and vapors is a natural consequence. The instant removal of these is insured by the direct connection of the suction duct of the forced blast blower to the storage bins. In this way the fumes and vapors are mixed with the air supply of the furnace and destroyed in the regular cycle of combustion, and contribute in some degree to increase the intensity of the fire.

The new features which add to the durability of the furnace are the substitution of the flat suspended arch for the ordinary curved arch and the positive ventilation of the air space between the fire-brick lining and the furnace wall. An item of practical value in furnace management is the provision of peepholes at convenient points for observation of the state of combustion in the grate chamber and in each of the three passes of the combustion chamber.

It is possible for the fireman to adjust the chimney damper to the changing conditions of the fire without moving from his place in front of the furnace. This is often very desirable, even in the case of forced-draft furnaces.

The importance attached to the separation of floating dust and the purification of the gases in the Balmer design is well shown in this small plant. The combustion chamber is of large dimensions and designed to insure repeated changes in both velocity and direction of the gases on their way from the grate chamber to the chimney. At the same time, supplementary air highly heated within the sectional walls of the combustion chamber is injected into the gases in the first pass of the combustion chamber, effecting a thorough mixture and assuring their complete combustion. This emphasis on the necessity of purity in the gaseous product is quite in line with the increasingly higher standards now being applied to this and every other public sanitary service.

The elevation of the clinker and ashes from the firing floor to the ground level is effected by a hand hoist. The ash containers are of the standard galvanized type in general use. This operation is convenient, expeditious, and practical, and is well adapted for small-size plants.

The consulting engineer who made the preliminary studies for the new project and supervised its execution is Cyril E. Marshall of Hempstead, Long Island.

Welding Cast Iron Pipe

ENGINEERS who have had occasion to use cast iron pipe welded with either cast iron or bronze will be interested in the results of an investigation made by A. R. Lytle, of the Union Carbide and Carbon Research Laboratories, Long Island City, N. Y. In his paper, "Effect of Heat of Bronze Welding on Cast Iron Pipe," read before the International Acetylene Association, Mr. Lytle arrived at the following conclusions:

1. Neither cast iron welding nor bronze welding has any detrimental effect on the structure of cast iron pipe.

2. It is possible that with cast iron very high in phosphorus, the bronze welding may weaken the structure sufficiently to lead to failure, though this is doubtful.

3. Inasmuch as welding either with cast iron or with bronze strengthens the base metal at that point, it is more or less natural that line failures in overstressed pipe should occur just outside these altered zones.

4. It may well be that some of the failures occurring in welded gas lines have been the result of surface cracks or defects in the pipe. The influence of these cracks may be emphasized by the welding process.

Relighting Indianapolis

New Modern System Provides for Future Extension

By Ward Harrison

THE completion of the new street-lighting system in Indianapolis is one of the most interesting of recent street-lighting installations, as it makes the city well lighted throughout. The installation was made by the Merchants Heat & Light Company of Indianapolis, which will maintain the system under contract with the city according to plans prepared by the Board of Public Works with the advice of competent engineers. The street lighting was formerly supplied by the same company, but they scrapped all existing lighting fixtures and installed modern equipment in accordance with the best lighting practice. Such a procedure is new in the annals of street lighting and illustrates the spirit of cooperation and the desire for the best on the part of the city.

The result has been a street-lighting system modern and efficient in every respect, which meets present-day conditions, but is also built to accommodate, as far as engineering skill and judgment can foresee, future additions as necessitated by the growth of the city and advances in the art of street lighting. The wisdom of this policy is already apparent in the general satisfaction and pride in the new lighting and will be further sustained as years show freedom from operating troubles and the ease with which the system may be kept modernized.

Comprehensive Plan Adopted

A feature of the new installation which marks it as an example that may be followed by other municipalities, is that the lighting requirements for the entire city were determined and the recommendations made on the basis of these requirements: The street were divided into five main classes—primary business streets, secondary business streets, principal thoroughfares, secondary thoroughfares, and residential streets. Such factors as width and character of streets, types of buildings, pedestrian and automotive traffic, and further probable growth of the city, were considered and weighed in proportion to their importance in determining the amount of illumination and type of equipment necessary. The design is flexible; that is, as the city grows and the street-lighting demands become more severe, additions and extensions can be made which will be in harmony with what has already been installed.

DAYLIGHT EFFECT PRODUCED ON DOWN-TOWN STREETS BY TWIN 15,000-LUMEN LAMP STANDARDS

Incandescent Lamps Used Throughout

In the center of the city on the main business streets and on portions of the streets to which it is desired to direct traffic, two 15,000-lumen Mazda C lamps per post are used, the posts being spaced opposite each other on about 105-foot centers. The height to light centers is approximately 20 feet. The lamps

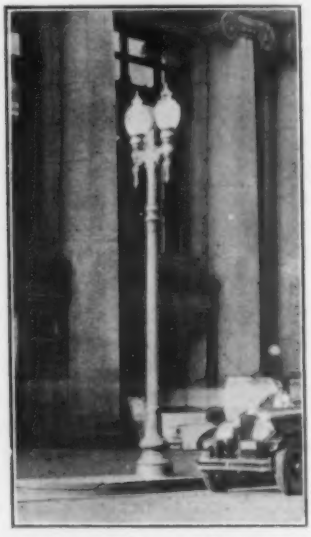
OLD STYLE STREET LIGHTING IN INDIANAPOLIS

are fitted with General Electric Form-9 Novalux units and No. 118 medium alabaster rippled glass globes and canopies. Union Metal Manufacturing Company pressed steel standards are used here, as throughout the rest of the city, for all the ornamental lighting.

On the secondary business streets and portions of the principal thoroughfares, one 15,000-lumen Mazda C lamp per post is used, with posts located opposite each other on about 105-foot centers. A mounting height of 15 feet is employed. The same lamp equipment is used as on the two-light standards in the main business district.

The primary thoroughfares are illuminated by means of one 6,000-lumen Mazda C lamp per post, the posts being located on opposite sides of the streets in a staggered formation, with one lamp for every 110 to 125 feet of street. A mounting height of 12 feet is used. The lamps are equipped with G. E. Form-8 Novalux units and No. 127 light alabaster rippled glass globes, canopies, and prismatic dome refractors. These globes are the same in contour as those in the down-town district, but smaller, so as to conform correctly to the smaller lamps.

The secondary thoroughfares are illuminated by means of 4,000-lumen lamps provided with the same type of equipment and spaced the same as on the primary thoroughfares.



THE NEW TWIN-LIGHT STANDARD USED IN THE BUSINESS SECTION

Throughout the residential district the old flaming arc lamps have been replaced by 10,000- and 6 000-lumen Mazda C lamps, equipped with G. E. Form-6 Novalux units using acorn-shaped rippled glass globes and dome refractors. A summary of the lamps installed appears on the first page of this article.

Glassware

All of the ornamental equipment, that is, posts and glassware, is of the same design, differing only in height and size, so as to conform to the various illumination requirements. Thus, the entire installation is unified

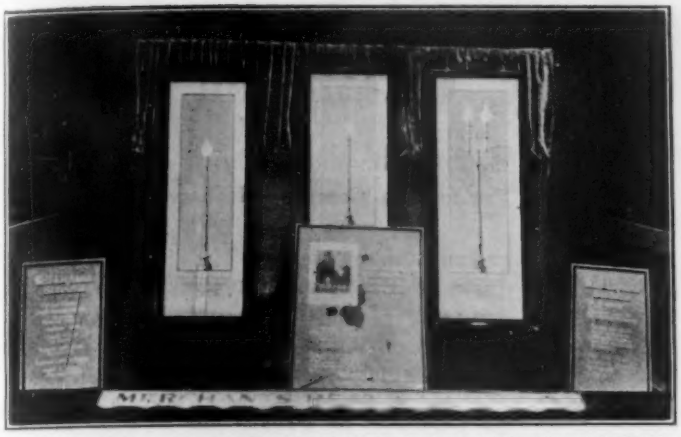
MODERN STREET LIGHTING IN INDIANAPOLIS

and harmonious, which greatly enhances the appearance of the system and of the streets. To visitors and citizens it indicates careful planning and thought and tends to create a favorable impression of the city. The single-light standards now employing 15,000-lumen lamps are so constructed that, as the requirements demand, they can be raised to 20 feet and a duplex head installed.

A new departure in street-lighting glassware is illustrated in the rippled glass globes used with the twin 15,000-lumen lamps. In addition to the opal flashing customarily used to diffuse the brightness of the light source, a thin flashing of blue glass is incorporated. This layer of blue glass filters out a sufficient proportion of red and yellow light rays to produce an appreciable whiter light. In combination with the sparkle produced by the rippling of the globe surface the effect is very pleasing. The loss of light due to the use of the blue glass is only about 10 per cent.

Underground Circuit

Underground cable carries the current to the ornamental equipment. In the main business district single and duplex No. 8 500-volt lead-covered cable is used, placed in tile ducts. On the thoroughfares, No. 8 single conductor, lead-covered, steel-armored, jute-protected cable is laid directly in the ground, 18 inches



THE LOCAL LIGHTING COMPANY STIMULATED PUBLIC INTEREST WITH A WINDOW DISPLAY

below the surface. Where necessary to cross the roadway, the cable is placed in pipe conduits.

The current is supplied to the lamps by means of a standard series circuit. At the main substation a station-type constant-current transformer, hand-controlled, supplies the energy for the down-town and main thoroughfare lighting circuits. This main circuit, by means of suitable relays and switches, also controls the outdoor pole-type constant-current transformers, which supply energy to the remainder of the system. Thus the entire installation is controlled from one point.

Individual Transformers

To insure increased safety and better operating conditions, all lamps are either the 15- or the 20-ampere type equipped with individual transformers. The transformers located in the bases of the ornamental standard are of the two-coil insulating type, while the pendant units are equipped with auto-transformers. With all lamps smaller than 15,000 lumens, transformer windings are arranged to supply lamps of the next size larger, so that in the future, as more light is desired, the change to larger lamps can be made at slight cost. The advance in the efficiency of light production is strikingly brought out by a comparison of the old and the new installations. With the old equipment, approximately 8,500,000 lumens were available on the streets, while the new equipment with its superior light control will direct to the streets approximately 15,500,000 lumens. Thus, by taking advantage of the progress that has been made in lighting practice, the citizens of Indianapolis, at a slight increase in cost, have secured 80 per cent more light in the streets, and in addition to providing this increase in light, the new fixtures add to the appearance of the streets and are a contribution to the sum total of the city beautiful.

Keen interest in the new street-lighting system was evidenced by all groups within the city. The Merchants Heat and Light Company equipped one of its large display windows with photographs and cards explaining the new system, and newspaper and group publications carried feature articles. As the equipment was put in place, large placards with appropriate messages were placed on the standards. The installation represents almost unanimously the desire of the citizens and is a true expression of municipal pride and initiative. Even in the short time the ornamental equipment has been in place in the down-town section, new visions of an advancing city have been created, and further improvements in both lighting and architecture are on the way.

ACKNOWLEDGMENT.—Illustrations by courtesy of *Light*, Nela Park, Cleveland, Ohio.

EACH MAIN THOROUGHFARE POST BORE THIS SIGN WHEN ERECTED

Combined Reservoir and Tennis Court at Ponca City, Oklahoma

By Waldo E. Smith

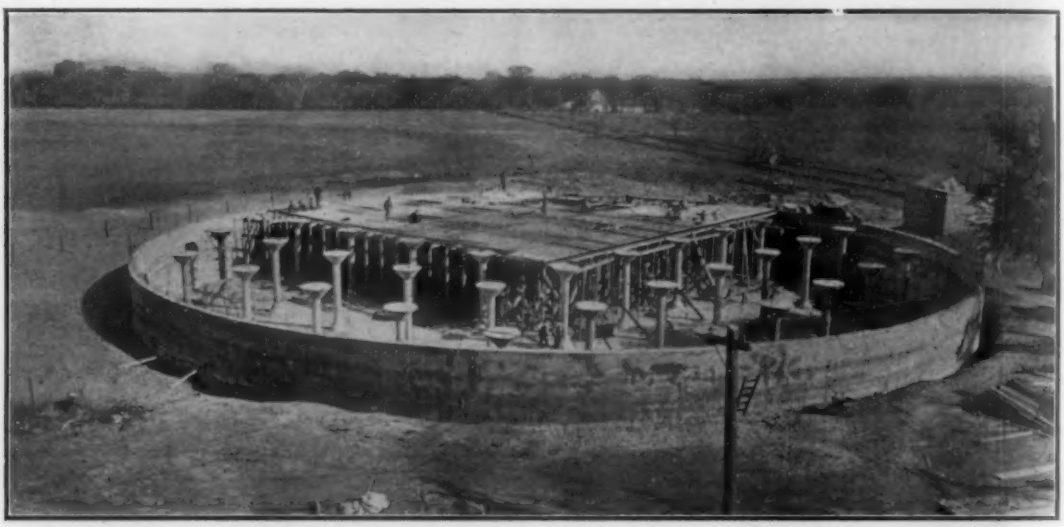
Supervising Engineer, Burns & McDonnell Engineering Company, Kansas City, Mo.

SEVERAL new and unusual features are incorporated in the design and construction of the two-million-gallon reinforced concrete reservoir now nearing completion on the site of the water-works of Ponca City, Okla. The reservoir is of the ring tension type. Its inside diameter is 160 feet, and its inside depth is 15 feet.

The subsoil upon which the reservoir rests is a fine white sand, commonly known in that locality as "blow sand." The floor slab was poured monolithically with the column footings and reinforced to give uniform bearing on the sand over the entire reservoir bottom. The slab is 6½ inches thick except at each column, where it is 11 inches thick, the increase being on the underside of the slab.

Around the outer edge of the floor, including the area upon which the wall rests, the thickness of the slab was increased 6 inches on its top surface. In this shoulder, which was poured monolithically with the floor, the dowels for the wall were placed. In order to secure a water-tight construction joint at this juncture of the wall with the floor, a strip of 22-gage zinc, 12 inches wide, was inserted in the shoulder around the entire periphery to a depth of 6 inches, leaving an equal amount to extend into the wall.

The wall is of uniform thickness from bottom to top, the thickness being 14 inches. This made possible the use of slip forms for the wall construction and readily facilitated the pouring of concrete continuously, thereby eliminating the likelihood of leakage due to construction joints. Slip forms have been used extensively throughout the country in the construction of grain bins, but not generally in a structure of this type. The method proved to be satisfactory.



THE PONCA CITY, OKLA., RESERVOIR UNDER CONSTRUCTION

Dowels were placed in the floor during its construction, for the proper securing of the columns to the floor. The columns are circular in section and of the type known as "mushroom columns" because of the enlargements at top and bottom. The shaft of the column is 16 inches in diameter and is reinforced by four ⅝-inch round bars placed vertically, and a spiral made of ¼-inch round steel bars. The columns are spaced 20 feet apart each way. A sheet iron and wood sectional form built by the contractor was used in the construction of these. In pouring, the column form was filled slowly to the top of the shaft. Then, after a minimum of three hours, the top "bell" was poured. The lapse of time

was given to allow for shrinkage and settlement to take place and thereby eliminate any possibility of a honeycombed section at the top of the shaft. This lapse of time was sufficient.

The roof is a 6-inch slab reinforced in two directions with a drop panel over each column. As the side wall neared completion, ½-inch round steel bars, 8 feet 6 inches long, were inserted to a depth of 3 feet below the finished roof line. After the roof steel had been laid, these bars were bent over into the top face of the roof slab, thus making a rigid connection between the wall and the roof, capable of withstanding the negative moment at the edge of the slab.

After the completion of the roof slab, which is now under construction, an earth embankment with an 8-foot berm is to be placed around the outside up to the level of the roof. This level is about 8 feet above the natural ground surface.

A sand trap, 10 by 10 by 12 feet, was built where the incoming line enters the reservoir. Practically all of the sediment and sand entering with the water which comes direct from wells will be retained in this, thus lessening the intervals of reservoir cleaning.

There are five ventilation manholes on the roof of the structure, one on each quarter of the roof and a fifth one over the sand-trap. There is also a manhole, flush with the roof at the place where the overflow is located.

In the construction of the walls, 2½-inch pipes were placed at intervals around the wall to a depth of 3 feet below the finished roof line. The tops of these are flush with the finished roof. In these, other pipes, which will be the standards for a Cyclone fence, will be grouted. The area within will provide space for two municipal tennis courts. Mortar color was sprinkled on the top of the roof previous to its finishing, to eliminate glare from the sun.

The reservoir was designed and supervised by the Burns & McDonnell Engineering Company, of Kansas City, Mo., and constructed by the Gallomore Construction Company, of Cushing, Okla. J. W. Crow is Superintendent of the Water Department, and the construction cost, $37,000, is provided from the earnings of the plant, no bond issue being required.

Foundations for Asphaltic Wearing Surfaces

By George C. Warren

DRAINAGE is a first essential to success in road construction, and yet it is given the least serious consideration by engineers and designers generally when it comes to planning for any specific project. The question of subsoil is another point which should receive serious consideration before the road design, including the base, is determined. Intelligent consideration should be given to the economic aspect of every road project as a whole, as well as of each section of each project, since there is more or less variation in contour and subsoil and drainage conditions in the territory through which the road passes. Road location is another important consideration preliminary to the consideration of base and surface design. Some engineers still believe in the "straight line" type and establish new locations almost everywhere in order to overcome curves as far as possible and provide uniform gradients. Some of the most attractive roads in the world contain a multitude of curves which add to the scenic beauty of the highway. The Columbia River Highway, Portland, Ore., and the Ogden Canyon Highway may be mentioned as two outstanding examples. Other engineers will follow the location of the old road and pass without full economic consideration unnecessarily short radius curves and steep gradients.

Old Macadam for Foundations

Both in country roads and in city streets, millions of dollars have been expended in the construction of macadam roads which, prior to the advent of motor vehicles, were quite adequate to meet traffic economically, but which under present conditions are absolutely inadequate. While exceptions do exist, it is advisable to use old macadam roads to form a basis for new structures. This is true whether or not the so-called macadam or old road is sufficient in depth to provide adequate foundation. It is certainly deep enough to salvage and build upon with new material rather than to excavate the old road and start

fresh with its attendant waste of expenditure.

In the vast majority of subsoils and climatic and traffic conditions, a reasonably well-drained subsoil provides a basis for the successful construction of a well-filled compressed stone base of either crushed stone or slag.

Surfacing Old Brick, Asphalt Block, and Stone Pavements

The general principles involved in surfacing old brick, asphalt block, and stone pavements are quite similar to those in surfacing old macadam, with these exceptions:

1. The crown of the old block pavement is generally the same as designed for the new surface.

2. Be sure that the old pavement is on a sufficiently solid foundation, so that the individual blocks will not rock under traffic.

3. In case, under this test, the old pavement is found to be weak for the entire new base, it should be reinforced by an adequate depth of new dense asphaltic concrete binder. Portland cement, in the writer's opinion, is not suitable, because it is entirely too rigid to withstand shocks when it is laid in thin layers.

4. If the old block pavement does not provide reasonably uniform contour, it should be made so by the application of dense asphaltic concrete binder to fill depressions. If the old contour is very bad, it may be necessary to provide such binder to an average depth of about one inch over the entire area. A first requisite for the proper asphaltic construction of any type is a base of reasonably true contour so that the new surface may be practically the uniform depth specified and thus provide a basis for uniform compression and surface grade.

Dense Asphaltic Concrete Base

Except in the case of palpably weak subsoil, such as clay in sections of the country subjected to frequent rains during the construction season, dense asphaltic concrete has proved its economic value. The subgrade must be sufficiently stable to provide a sufficiently solid grade over which the asphaltic concrete base can be compressed by rolling. Dense asphaltic concrete cannot be laid at as low cost, inch for inch, as portland cement concrete primarily because:

1. Asphaltic cement costs approximately one-third more by weight than portland cement.

2. Asphaltic concrete requires fuel, experience, and more elaborate equipment than portland cement concrete.

3. The labor employed in mixing, hauling and laying is greater per unit of measure.

The cost of mineral aggregate per unit of measure is practically the same in both cases.

On the other hand, there is plenty of proof that with subsoil conditions adequate for the use of a dense asphaltic concrete base, because of its resiliency and flexibility against the rigidity of portland cement concrete and the depth of each necessary to give the best results, the asphaltic concrete is practically as low in first cost as the portland cement and probably more economical in the end.

ACKNOWLEDGMENT.—From a paper read before the Fourth Annual Asphalt Conference.

The Public Schools and Crime Prevention

CAN our public schools prevent delinquency and crime by giving early and painstaking special attention to pupils who are backward or out of focus in schools or whose behavior makes them constant puzzles or pests to teachers and parents? Even though all such "problem children" are not necessarily headed for jail, will timely study of their difficulties make them happier and more effective citizens of the school and eventually of their community?

Affirmative evidence in this respect and a story of progress in establishing "child guidance clincs" and visiting teacher service to help such children are found in a report just issued by the Joint Committee on Methods of Preventing Delinquency which summarizes four years of work under a program initiated and financed by the Commonwealth Fund, one of the larger American philanthropic foundations.

Under the direction of the National Committee for Mental Hygiene, says the report, demonstration child guidance clinics are now being conducted in Philadelphia and Cleveland. Similar demonstrations have been carried on for periods varying from six months to a year in five other cities. As a result of this work, child guidance clinics fully supported by the local communities are now in operation in St. Louis, Dallas, Minneapolis, St. Paul, Los Angeles, Memphis, and Richmond. At these clinics children who are proving too much for the adults responsible for them are given systema ic physical, psychological and psychiatric examination and assisted by trained and sympathetic welfare workers to adjust themselves to happier and more normal ways of living.

To demonstrate the value of the visiting teacher as a specialist in the handling of the problems of misbehaving or retarded school children, arrangements were made in cooperation with the local boards of education to supply a trained visiting teacher for three years in each of thirty communities. In ten of the twelve cities where these three-year demonstrations closed in June, 1925, visiting teacher service has been established as a regular part of the public school work.

A Zoning Ordinance in Its Fourth Year --as Seen by One of Its Godfathers

Victories Gained and Lessons Learned in Wichita

By P. L. Brockway

City Engineer, and Secretary City Planning Commission, Wichita, Kans.

A ZONING ordinance was officially enacted by the City Commission of Wichita, Kans., in March, 1922, practically as recommended by the City Planning Commission, guided by Harland Bartholomew as technical adviser. The city had about 85,000 inhabitants at that time and is steadily growing about three to four per cent per annum. Its principal industries manufacture agricultural products into forms desired by the ultimate consumer. Flour mills and packing plants are the most important. Adjacent oil fields support some large oil refineries. It is also a fairly important jobbing center.

In short, from a zoning standpoint it is not dissimilar from any thriving inland medium-sized American city, except perhaps that it has no natural barriers, topographic or otherwise, to prevent unrestricted development in any direction. Some directions are more desirable than others, which is affecting the details of the growth of the city, but none are at all impossible.

The use map divides the city into five zones: Residence "A"; Residence "B"; Commercial; Light Industry; and Heavy Industry. A major street system, a transit and transportation system, a park and boulevard system and a detailed study of existing use, height, and occupied percentage of lot area were all made preliminary to the first tentative use and area maps. In fact, it is difficult to understand, in the light of nearly four years of experience with making and using a zoning ordinance, how it could be intelligently done in any other way than as one of the divisions of a comprehensive city plan. Yet the apparent popular conception is that zoning is one thing and city planning an entirely independent proposition.

Several interesting points have developed in the four years of making and administering the particular ordinance under discussion. In the first place, there is little doubt that zoning was precipitated by a veritable swarm of gasoline filling stations and cottage grocery stores built with absolute disregard of the desires of the neighborhood, although the larger companies building and operating filling stations had partially met the objections by building substantial, neat structures and by beautifying the grounds with well-kept lawns and shrubs. The individual store builder recognized no authority beyond his own pleasure or selfish advantage. In only one case had the neighbors been able to persuade the individual to conform to the established setback before zoning became a law. As it became more evident that zoning might prevail, a number of such buildings were erected in the hope that zoning would give a practical monopoly of location. Finally, the City Commission called for public hearings on a proposed zoning ordinance and refused to issue a building permit for a store in a proposed residence district. This formed the basis for a mandamus proceeding in a widely quoted case (Ware vs. City of Wichita) in which the action of the city was sustained by the Supreme Court of the state of Kansas. (Fig. 1.)

FIG. 1.—THE COURTS SUSTAINED THE CITY IN ITS REFUSAL TO PERMIT A GROCERY STORE IN THIS BLOCK

FIG. 2.—JUST OUTSIDE THE JURISDICTION OF THE ZONING ORDINANCE—ONE OF THE PRINCIPAL GATEWAYS TO THE CITY
What selfish interest will do to a neighborhood

The same Ware later brought another proceeding after the ordinance was in effect to compel the city to issue a permit to enlarge a store in a residence district, and was again defeated in the same court of last resort. As a direct result of this and other cases, the principle of zoning has the support of the courts, which, however, reserve the right to pass on each appeal from the application of the principles, on the merits of the individual case. Inasmuch as the Kansas law does not provide for a board of appeals, this really sets up the court in place of such a board if a reasonable compromise cannot be reached without a tedious court procedure.

At the public hearings, which were held prior to the enactment of the ordinance and which were liberally attended by its opponents, the principal arguments were against the monarchical restrictions of personal liberty and the grave dangers sure to arise from putting iron bands around the city. Most of the specific complaints either were without foundation, being outside of the actual working of the ordinance, or were against what might happen under certain hypothetical but improbable future conditions.

A few modifications of the provisions of the ordinance were made, however, after the hearings. All references to height limits were stricken out because of lack of authority in the enabling act. Duplex houses are admitted in the residence district owing to a fairly general request. Very few had previously been built, but they are now becoming fairly common.

The boundaries of the central light industrial district were considerably increased as a result of many requests. The commercial zones are small in area and in percentage of total area, being used only as narrow buffer zones between light industrial and adjacent residence areas and as semi-suburban trading points at the intersection of major streets and for a considerable distance along the most important major streets.

A committee of the City Planning Commission visited each of the intersections of the major streets which were natural commercial centers and kept a few, which were fully developed with residences, in residence use rather than commercial. This has proved to be a mistake. Many partially developed corners have been changed by moving the residences away or to the back of the lots and by building stores in front, in the commercial zones at the intersection of major streets. Some of them have later been zoned commercial, but others can be so changed only at considerable loss to adjacent property which has been developed under the existing zoning ordinance.

One very unsatisfactory situation has arisen from an attempt to place a commercial zone at a suburban crossing of two major streets after the original ordinance establishing it as residential had been in force for two years. This situation is now before the courts.

The other outstanding lesson learned from the actual working out of the original suburban commercial zones resulted in a substantial increase in their area. Most of them included only the four corners at the actual intersection of the streets, with a total available frontage of about 600 feet. There is no doubt that this is more than sufficient for the neighborhood needs, but lots were so cheap in some locations that speculators bought all available frontage, and prices advanced as much as 500 per cent in a year. This is a forcible illustration of the inherent danger of creating a monopoly of building sites as opposed to the possible blighting of larger districts by making commercial or industrial zones unreasonably large. There must be a surplus of sites to keep land prices at a reasonable level.

In the present case, the monopoly was broken by simply increasing the available frontage to 1,800 feet near each intersection of major streets. No ill effects have been developed as a result of the change. Setback provisions of the zoning ordinance prevent the indiscriminate blanketing of existing

homes. Neighborhood stores, therefore, stay as close to the principal intersections as possible in order to bring themselves to the attention of the most people.

Commercial uses are defined in the ordinance in detail, but include in general those retail stores which deal in small articles which require no more than light trucks for deliveries. An exception has recently been made allowing retail lumber yards to be located in long, solid, buffer commercial zones adjacent to light industrial zones. By buffer zones are meant narrow intervening zones between industrial and residential zones and situated along a major street.

No other changes have suggested themselves as being necessary or advisable in the handling of the commercial zones.

The City Commission is made the board of appeals concerning setback provisions only, and that only in case a block is zoned solidly commercial. The City Building Inspector is made the executive officer. He has handled the situation with painstaking sympathy and understanding. It cannot be emphasized too strongly that the successful operation of a zoning ordinance depends absolutely on just that official attitude. It changes an enemy to a friend if he is shown that the things he cannot do, cannot be done by his neighbor, and that value will be added to both their properties as a result.

People now quite commonly say that they would not build out in front of the established setback line if they could. That attitude is certainly gratifying to the people most responsible for framing and operating the zoning ordinance.

However, a very recent picture has been taken just outside the jurisdiction of the zoning ordinance which leads one to doubt that the attitude is universal. (Fig. 2.) It also points to a serious defect in the present enabling act. The city should be authorized to enforce zoning far enough outside its corporate limits to prohibit such gross nuisances as the auto-wrecking establishment at its very gates on a principal highway, to say nothing of the inevitable inclusion of haphazard growth within the corporate limits as the city grows. These newest additions should be the most orderly.

Turning to the "B" residence use, it differs from "A" chiefly in the admission of apartments, hotels, and club-houses. It is naturally in a wide belt around the central light industrial area with long strips extending out along some major streets in which transit facilities are now or will be located.

The "B" use districts are further subdivided by different lot area-per-family provisions, depending on land values. There is a considerable lack of agreement as to the correct answer on this density restriction. There is a considerable appeal to the imagination by each new proposed largest-efficiency apartment. The public is apt to be in favor of size of building rather than the future health, comfort, and welfare of the occupants, and the builder can never quite afford to buy as much ground as the ordinance requires—or at least, he makes that assertion.

It so happens that most building sites are 50 by 140 feet. The greatest restriction in "B" use districts, is, therefore, one family for each 1,160 square feet, which allows a two-family-per-floor three-floor arrangement on a building site. This is accompanied by the usual side-, rear- and front-yard provisions, so that each family has light and air. The restriction has met little opposition in the outlying districts where apartments are admitted.

The next and more liberal provision asks only 580 square feet per family. Eighteen apartments in three stories on 75 feet front is a fairly common arrangement and is satis-

FIG. 3.—APARTMENTS BUILT WITH SETBACK, SIDE-YARD, AND AREA-PER-FAMILY PROVISIONS ALL MET

Note substantial type of buildings. Improvements too new for planting development, which will follow

factory on such building sites costing not over $10 000. These also afford good light and air.

So far, those larger apartments built closer in have been able to convert themselves into hotels by operating public dining-rooms, and by so doing are not subject to lot area restrictions under the ordinance. Suites without kitchenettes are not classed as apartments, not being complete living quarters. A predominance of such suites constitutes a family hotel. Some of these definitions naturally provide loopholes for the apartment builder, but they must be made, they must be reasonable, and they must be fairly exact. Very little trouble has been experienced in working out the individual situations. The one or two doubtful cases are very close in and are operated like hotels, with stores on the lower floors, and rooms and apartments above, and with a less stable clientele than the true apartments farther out, so that they are really more nearly like hotels than apartment buildings.

FIG. 4.—A PRE-ZONING SUBURBAN FIRE-STATION

A typical zoned apartment development is shown in Fig. 3. Setback and side-yard requirements were opposed by the builder, but the final result is quite satisfactory all around.

No serious difficulty has been experienced in the location of industries. The light industrial area admits every industry which is not an inherent nuisance of excess noise, dust, noxious fumes, or odors. These areas are made large, in fact, unnecessarily large, for the real needs of the city. Industries were already somewhat scattered before the zoning ordinance was adopted. There is no apparent tendency toward blighting the district.

The period of time is naturally too short to show the evidence of blighting very much, but building activities so far have not indicated any slacking-up of residence and apartment construction in the large central industrial use district. The latter are nearly all concentrating where railroad facilities are available, or are staying as close to the commercial center as land values allow.

The so-called heavy industrial district—

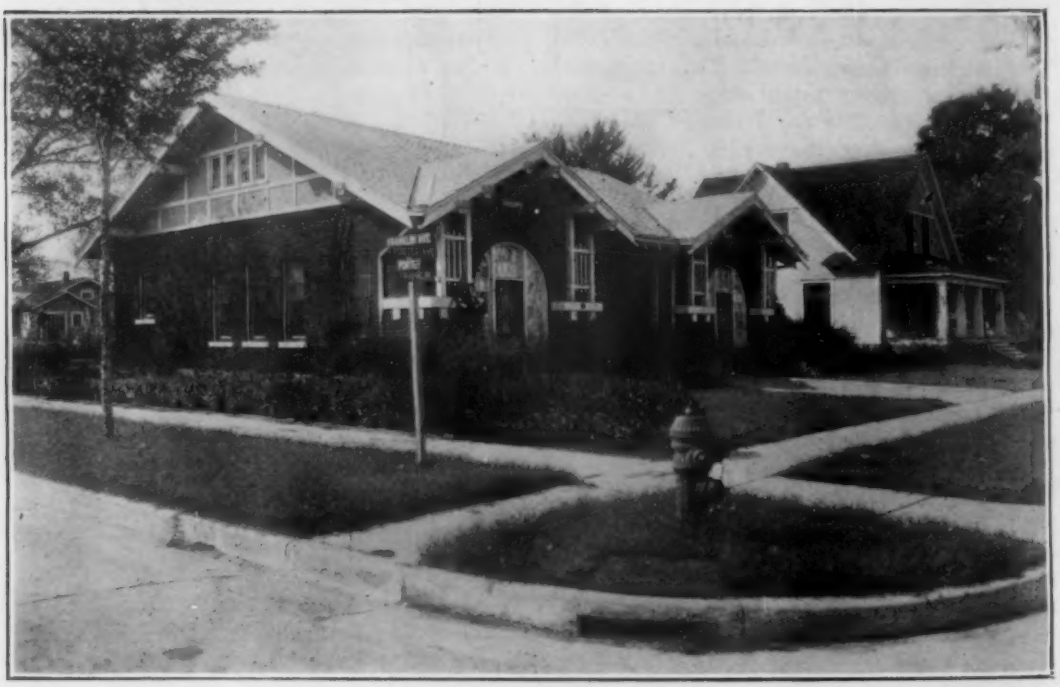


FIG. 5.—A ZONED SUBURBAN FIRE-STATION IN A RESIDENCE DISTRICT—NECESSARY, BUT NOT NECESSARILY A NEIGHBORHOOD EYESORE

really nuisance industries—was already largely developed in the north edge of the city owing to a concentration of railroads in that neighborhood. This was a fortunate circumstance because the prevailing summer winds are from the south and southwest. One railroad had made plans to build shops and roundhouses just south of one of the largest and best-developed park areas in the city. These plans were abandoned after the adoption of the zoning ordinance, and the land is being developed for light industrial uses in accordance with the zoning map.

This brings us to a consideration of an unexpected civic reaction to zoning. City planning includes civic art as one of its many

FIG. 6.—A PRE-ZONING HIGH SCHOOL BUILDING

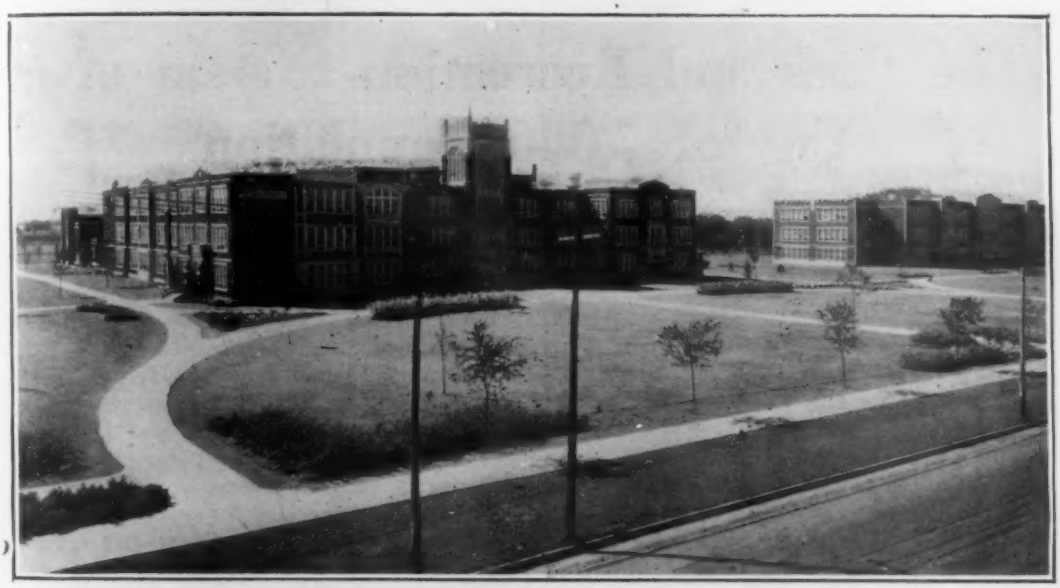


FIG. 7.—A HIGH SCHOOL PLANT WHICH IS A CREDIT TO A RESIDENCE NEIGHBORHOOD—A CIVIC CENTER WITHIN ITSELF

FIG. 8.—SUBURBAN COMMERCIAL DEVELOPMENT IN A ZONED DISTRICT

FIG. 9.—A STORE BUILT BEFORE THE ZONING ORDINANCE WAS ADOPTED

phases. The essence of zoning is orderliness in the civic development. This is only a step from neatness and another from artistic improvement. City planning is not a City Beautiful movement, but a well-ordered city lends itself so easily to embellishment that civic art is as natural a consequence as the planting of a lawn and shrubs about a nice house; in fact, it is the same thing in detail.

To illustrate the point, there are shown a typical pre-zoning suburban fire department station, and the latest one built by the same commission that enacted the first zoning ordinance. (Figs. 4 and 5.) There is also shown the city high school plant of fifteen years ago and the present high school and one of the junior high school buildings in their beautiful surroundings. All the landscaping shown is only four months old from raw grading and was planted and developed by the Board of Park Commissioners. (Figs. 6 and 7.)

The same tendency is shown in suburban commercial developments. Very few frame corner grocery stores are being erected. Stability of location and of custom are assured by zoning. The greater investment necessary is therefore amply justified, and the premises are kept neater and more orderly. (Figs. 8 and 9.)

Some of the industries have planted and maintained beautiful landscaping in the vacant spaces. The work is naturally not complete. No one wants it to be, but the net results to date are most encouraging.

The Park and Recreation System of a City of 7,000 Population

By W. K. Voorhees

Member, Board of Park Commissioners, Cedar Falls, Iowa

USUALLY it is not considered possible for a town or small city to have an adequate system of parks, including suitable facilities for swimming, golf, athletics, tourist camps, and picnicking, although these advantages are very generally available to the residents of the larger cities. A community of about 7,000 population which does enjoy such advantages is Cedar Falls, Iowa, with a park acreage of 225 acres of natural wooded land and recreation facilities which not only serve the needs of its people, but are the mecca for thousands of visitors from the surrounding towns and country.

Cedar Falls is situated on the beautiful Cedar River and is the home of the Iowa State Teachers College, with an all-year enrollment of something over 3,000 students. The present system of parks dates from 1917, when, by a vote of its citizens, a park commission was created and a tax levy of 2½ mills was levied, bringing in approximately $3,200 per annum.

Bathing Facilities

One of the first undertakings of the Board of Park Commissioners was to eliminate the hazards of the river for bathing purposes. In order that citizens and visitors might fully and safely enjoy the many advantages of this fine stream, it was decided to construct a municipal bath-house and bathing-beach. In the spring of 1920, in cooperation with the local Commercial Club, a fund of over $5,000 was raised by public subscription to supplement the available park funds. Land was purchased for Island Park, and the present municipal bath-house and beach were constructed at a cost of about $10 000.

The bath-house is modern in every respect, being equipped with steel lockers, showers, toilets, city water, and electric lights. The problem of cleanliness and sanitation was given careful consideration in designing the bath-house, and as a result strictly sanitary conditions are easily maintained.

The bathing privilege fee is 10 cents. Steel lockers are furnished for 10 cents, suits for 15 cents, and towels for 5 cents. However, no charge is made for the use of the beach or lockers for children under 15 years of age. To maintain the high standard of cleanliness, all suits and towels are laundered after each time they are used. A local laundry performs this service.

The bathing pool is approximately 500 feet long by 200 feet wide, and has a fine sandy bottom and a depth of water ranging from the shore line to a maximum of 10 feet at the outer diving docks. The water in the pool is changed continually and is kept clean by

MUNICIPAL BATH-HOUSE AND POOL, CEDAR FALLS, IOWA

the natural flow of the river itself.

Diving docks and other adequate equipment are provided for the benefit of the bathers. Efficient life-guards are constantly on duty whenever the beach is open, and orderly conduct is strictly enforced.

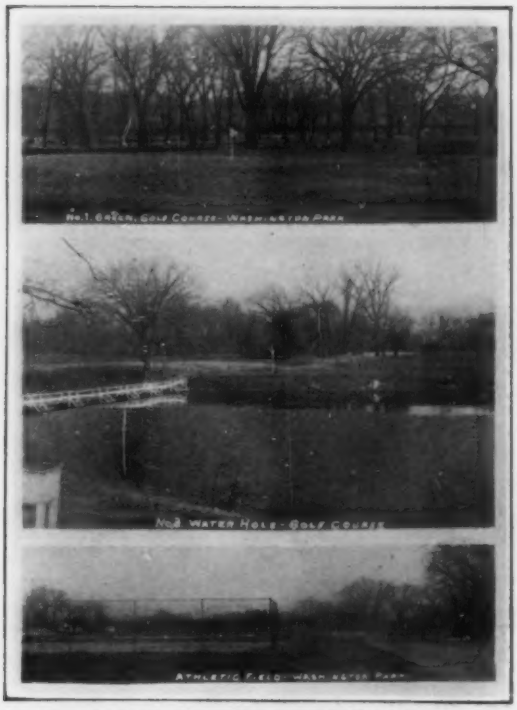
The small fees charged have made the venture more than self-supporting, and the additional revenue is being used to pay for additional property added to Island Park, now consisting of about 110 acres, to pay for additional equipment, and also to improve and develop the park itself. Roads have been built, trees planted, a tourist camp developed, a tennis court constructed, and a large number of tables and fireplaces provided for picnickers, most of which improvements have been paid for by the surplus earned by the bathing-beach.

The success of the bathing-beach venture created a desire for additional recreational facilities, and through the generosity of Henry and Annie Pfeiffer, former residents of the city, a beautiful tract of wooded land of 85 acres, also located on the Cedar River, was donated for park purposes, together with $10,000 to assist in the development of the property. Twenty acres of adjoining land was acquired by purchase and added to the original tract. From this property has been developed Washington Park. This park has many beautiful spots, including a spring-fed lake of about 400 yards in length, several very fine springs, and 28 different varieties of native trees. A landscape architect was employed and complete plans for the full development were drawn, which are being carried out as fast as the funds permit.

The Municipal Golf Course

The 9-hole municipal golf course was completed and opened for play in July, 1923. In laying out the course, full advantage was taken of the natural contour of the land, resulting in economy of construction, with an excellent variety of holes, and with many natural hazards to test the ability of the players. Grass greens have been used from the beginning and are being constantly improved. An ample supply of water for the greens is provided.

The golf course is open to the general public at low fees. Season tickets are sold to men for $10, and to women and to boys under 18 years of age for $5. Daily green fees for 18 holes are sold at 35 cents. Children under 15 years are permitted to use the course free of charge forenoons, except Sunday and holidays. The course was not self-supporting the first two years, but the players have been increasing in numbers each year; and as the receipts from the course were slightly in excess of the cost of operation for the 1925 season, the indications are that the golf course will now be self-supporting.



Courtesy of A. W. Van Cleave, Cedar Falls, Iowa

RECREATIONAL FEATURES IN CEDAR FALLS

Top.—No. 1 green, golf course, Washington Park

Middle.—No. 3 water hole, golf course; a pontoon bridge, constructed of barrels, enables players that are playing this hole to go across the lake to the green

Bottom.—Tennis court, with football field and baseball diamond in the background; also cottage home of caretaker and greens keeper of Washington Park

In addition to the golf course in Washington Park, athletic fields have been provided, including a baseball diamond, a football field, and a tennis court. The local high school uses the football field for its home games as well as for a practice field. Numerous tables and fireplaces also have been provided for the many picnickers.

A Soldiers' Memorial Grove with trees planted in memory of those who lost their lives in the World War is also included in Washington Park.

Small Parks and Playgrounds

In addition to the two larger parks described above, there are three smaller parks with many fine shade trees and equipped with restful seats for the convenience of their respective neighborhoods.

Some playground equipment has already been installed in most of the parks, and it is the purpose of the Park Commission to equip all the parks with ample and suitable playground apparatus as its funds will permit. It is the hope to have a desirable playground within easy access of every neighborhood in the city.

In order to simplify the management of the various parks and activities, the three park commissioners have adopted a policy of dividing the responsibility. Each commissioner assumes the direct management of a portion of the park system, thereby avoiding duplication of effort and resulting in more efficient handling of the entire system. The funds available will not permit the employment of a park superintendent.

The citizens of Cedar Falls are proud of its parks and have cooperated fully with the Board of Park Commissioners. The effort, time, and money expended have already been repaid many times by the satisfaction and enjoyment derived.

DRIVEWAYS IN WASHINGTON PARK AND ISLAND PARK, CEDAR FALLS, IOWA

When Organizing a Community Chest

Steps to Be Taken When Considering the Organization of a Community Chest, as Suggested by the American Association for Community Organization

EVERY community is a separate problem, and should be studied as such. While much information of value can be gained by gathering the experience of other cities, the deciding factor will always be the extent to which the community spirit exists in the particular community considering the community chest plan. Whether this community spirit is ripe for this particular experiment can only be determined by study locally.

The thing to keep prominently in mind is that the community chest cannot succeed unless it can command the hearty support both of the social workers (that is, those who, either as volunteers or paid workers, are heading up the social work of your community) and the leading givers in the community. Since, in most places, half of the total community fund will come from persons giving $100 or more, it is evident that the success of the money-raising campaign depends upon the extent to which a couple of hundred influential givers agree to support the community chest. These social workers and influential givers should be consulted personally, and it should not be taken for granted that they will be in favor of the community chest. They may prove to be more interested in some one organization, and will need convincing of the merit of the community plan over the present method of financing social work.

In the case of communities with less than 40,000 population, the feasibility of the community chest plan should be studied with special care. Certain problems not encountered in larger industrial places exist in fairly complicated form in places of 20,000, 25,000, and 30,000 population, particularly where they are centers of a rural region. One of these special problems is the extent to which the social work having its headquarters in the town actually extends into the neighboring rural country. For practical purposes, the population served by the social work and the population appealed to in support of the community chest should be the same. If, however, the community chest is organized on the basis of raising money exclusively from the inhabitants of the town where the sentiment for the community chest exists, there may develop a tendency to insist that the money raised be expended exclusively in the town. Such a policy would only be harmful, and would run counter to the established policies and plans of the social work organizations, many of which may be organized on a county-wide basis.

In order that the general public may have adequate knowledge upon which to base a decision as to the desirability of adopting the community chest plan locally, it is necessary that there first exist in the community a small group sufficiently well informed about the plan to convince others of its merits.

Rapid Growth of the Community Chest Movement

The spread of the community chest plan throughout the United States and Canada during recent years is indicated by the following figures compiled by the American Association for Community Organization. The figures show the number of cities having community chests and welfare federations and the amounts raised by these organizations during the years ended May 31, 1923-25.

	Number of Cities	Population	Total Raised
1923.....	134	17,451,232	$39,468,214
1924.....	180	20,355,102	48,863,366
1925.....	206	22,626,217	55,500,000

A bulletin listing the amounts pledged to each community chest and welfare federation from 1921 to 1925, inclusive, is obtainable from the A. A. C. O., at 315 Fourth Avenue, New York City.

What the Preliminary Study Should Cover

The best way to begin is to have a small but representative committee appointed for the purpose of gathering facts on which a community decision can be arrived at. This committee may be named by the chamber of commerce or any other organization able to command public recognition. This study should envisage:

a. The actual situation of the social work which it is proposed to finance through the community chest.

b. Fundamental policies, and administrative methods of the community chest (that is, campaign methods, office system, educational publicity the year round, etc.), as worked out in practice in neighboring community chest

cities.

That part of the study dealing with the actual situation of the local social work should include:

1. A list of all the organizations considered eligible to participate in the community chest.
2. Statement of the purposes of each organization.
3. Whether the organization operates only in the town or in the entire country.
4. Income and expenditures of each organization (if possible for at least two years), showing how much of the total cost of the work is derived from (a) income or endowment, (b) earnings and various forms of self-support, (c) voluntary contributions, donations, tag-days, etc.

It will contribute to a better understanding of the local social work on the part of the public if in the final report the work of the various organizations and the cost are grouped under the following main heads:

I. *Public health;* including hospitals and dispensaries, visiting nurse association, American Red Cross rural nursing; tuberculosis and other health education, mental hygiene, venereal disease clinic, etc.

II. *Family Welfare and Relief;* including Associated Charities, Catholic and Jewish United Charities; social service bureau, Salvation Army, Red Cross, charitable missions; old people's homes.

III. *Child Welfare;* including the cure and prevention of juvenile dependency and delinquency, orphanages, Children's Aid Society, day nurseries; privately supported detention homes for delinquent boys and girls: rescue homes for girls.

IV. *Character-Building;* including Y. M. C. A., Y. W. C. A., Boy Scouts, Girl Scouts, boys' clubs, etc.

If possible, some attempt should be made in this study to show the interrelationship of the work of the various organizations. This ought to bring out the extent to which there may be overlapping or duplication of effort; more important still, the extent to which important pieces of community welfare work are not being taken care of by any organization.

If the preliminary study is properly made, it ought to result in a report which will give the community, for perhaps the first time, a fairly complete picture of all the social work dependent upon voluntary contributions. It will probably also indicate directions in which the social work could be improved through more efficient coordination. Since better coordination of community social work is the chief aim of the community chest, this report ought in itself to constitute the best possible argument for the organization of the community chest.*

Importance of a Full-Time Executive

The second part of the study, namely, that which has to do with community chest policies and methods as worked out in some near-by community chest, should include an examination of how that particular community chest raises and distributes money (that is, how the annual campaign is organized and conducted, how the budget committee is constituted and does its work, etc.), also the year-round organization of the community chest, the cost of overhead, etc. One serious drawback to the community chest idea in smaller communities is the cost of adequate executive supervision. It is being demonstrated more and more that the community chest plan will not succeed unless the community chest is headed by a competent social worker, giving full time to the job. Unless there is a full-time executive, it is hardly possible to carry on the year-round program of educational publicity which is necessary in order that the contributors may come to have as time goes on, a better understanding of the social work of the community. Unless this better understanding is developed, the community chest can hardly command the financial support of the community in succeeding years.

After the members of this committee know enough about the community chest plan to present the matter intelligently and convincingly to their fellow townspeople, it will probably be desirable to have some sort of public meeting in the nature of an open forum. It is a mistake to call a public meeting with the idea of putting the community chest idea over, before those interested in social work have been given every opportunity to inform themselves about the plan. At this meeting, try to have an address of an explanatory nature made by some person in direct contact with community chest work. An experienced community chest executive or the president of a near-by community chest, if available, would be a good person to call in at this time.

The out-of-town speaker should explain how the community chest plan works in his own community. Unless he has studied the local sit-

* EDITORIAL NOTE.—In local studies prior to the organization of a community chest, and in subsequent financial campaigns, many organizations are securing valuable aid from the field staff of THE AMERICAN CITY Bureau.

uation, he ought not to take the position that it will necessarily be a good thing for the community he is addressing. He should try to give a simple, clear-cut statement of the essential things in community chest procedure: how the budget of the community chest is arrived at, first by the presentation of figures from the organization on proper forms, then by joint conference between representatives of the organization and the community fund budget committee; how the campaign solicitation is organized; what sort of publicity has been found most useful to help the solicitation; the form of organization of his community chest; how the year-round executive work is handled; how much it costs; etc.

Make Haste Slowly

Every opportunity should be given those present at this meeting to ask questions. It is a mistake, however, to allow this public meeting to become a debate with speakers arguing abstractly for or against the community chest idea. If the attitude at this public meeting is favorable, the committee of study may be discharged and a committee to organize the community chest appointed. This committee should later submit to a second public meeting a plan for a community chest, with constitution and by-laws (and charter of incorporation when required by law). When the formal organization is approved, officers should be elected and the eligible organizations invited to join the community chest.

An interval of two or three months, if possible, should elapse between the formal organization of a community chest and the launching of the first campaign for funds. This time will be needed to get financial data from the participating organizations, to assemble the figures on proper budget forms, to have the budgets reviewed by the community chest budget committee, to organize the campaign for funds, and to make the necessary arrangements for the permanent executive staff of the new community chest.

If the various steps are taken in this order, it will probably be found that the influential people in the community will come to have an adequate understanding of the principles and methods of the community chest and will give it their moral and financial support.

Items from Here and There

Bureau of Municipal Research in China to Study Western Methods

ANNOUNCEMENT of the recent establishment of a Bureau of Municipal Research in connection with the National Institute of Political Sciences, at Woosungtseng, Kiangsu, China, indicates a growing interest in the need for progress in municipal affairs on the part of the people of that country.

The activities of the Bureau will consist primarily of the investigation of municipal conditions in America and Europe, the compilation and translation of municipal literature, and the furnishing of advice and guidance to cities and towns in planning municipal improvements. Chinese municipal officials contemplating the purchase of American machinery and equipment for public works will be able to secure through the Bureau price lists and other particulars. Efforts will also be made to acquire a sufficiently representative collection of material on all phases of municipal activities from America and Europe to warrant holding a municipal exhibit in China at some future time.

Roller Skates for Dresden Policemen; Red and White Batons for Constantinople Traffic Officers

ASSOCIATED PRESS dispatches during January have reported that, because of the limits placed on the number of German police by the Versailles Treaty, the city of Dresden is equipping a part of its police force with rubber-tired roller skates, thus enabling the police to cover more territory. The dispatch states that the first roller-skating class of twenty police is being organized, with a professional skater as instructor.

The Constantinople dispatch states that the Director of Police, Ekrem Bey, has installed the first electric signals for traffic control, and that a new corps of brilliantly dressed traffic police are giving back to the streets of Constantinople the color lost with the passing of fez and turban. The equipment of the traffic officers includes crimson and brass helmets and batons of red and white stripes, the latter resembling sticks of peppermint candy.

Chicago to Help Other Cities in Training Playground Leaders

AMERICAN towns and cities have developed playground and recreation systems to the number of seven hundred or more. Municipalities are looking for qualified and trained teachers in this new profession. They are difficult to find; the demand exceeds the supply. To meet a local situation in the first place and also to serve a national need, the Chicago School Board has established at Chicago Normal College a three years' course of training in this new profession.

Because of its splendid faculties and facilities, the Normal College offers an unusual opportunity for the all-round education and experience necessary to the recreation superintendent and leader. The students will qualify not only in academic subjects such as psychology, pedagogy, science, child psychology, playground history and theory, but will also be trained in the schools of graphic and industrial arts, kindergarten technique, music and

drama activities, etc. Practical field teaching in games, sports gymnastics, handicrafts, sandcraft, athletics, pageants, folk dancing, etc., will also be a necessary part of the students' equipment. Methods of community organization, publicity, finance, and neighborhood programs will be given consideration.

Chicago is perhaps the premier city in municipal recreation, for it has over thirty-three municipal bodies conducting playgrounds and recreation centers. It operates over a hundred playgrounds and as many social centers. It spends millions annually in this work. Positions will be opened to the successful graduates immediately. But other cities, like Milwaukee, are anxious to get students so trained that the right results in health, character building and citizenship training can be attained in the conduct of a municipal recreational system.

James E. Rogers, for seven years Director of the Department of Training of the Playground and Recreation Association of America, is head of this new educational adventure. Information can be secured by writing Mr. Rogers at the Chicago Normal College.

A Resolution on School Ventilation Adopted by 1925 Convention of American Public Health Association

"Whereas, hundreds of thousands of dollars are wasted every year on this continent in the installation and operation of systems of school ventilation which are not only not beneficial but are positively harmful to the health of school children, and

"Whereas, in the light of current knowledge, the supply of as large an air volume in schoolrooms as 30 cubic feet per minute, per capita, is necessarily accompanied with dangerous overheating of the schoolroom in order to avoid resulting drafts, and

"Whereas, the use of ozone and other chemicals for treating schoolroom air has little or no scientific justification and little or no practical value;

"Resolved: That the system of ventilating schoolrooms by fresh untreated outdoor air, admitted at the window with gravity exhaust ducts for removing vitiated air from near the ceiling, is the most generally satisfactory method of school ventilation; and

"Resolved: That state laws and city regulations interfering with such scientific and economical methods of school ventilation should be repealed in the interest of the public health."

Labor to House Itself

WHAT promises to be a movement fraught with great possibilities for the ultimate improvement of housing in New York is the announcement made by Andrew J. Thomas, the New York architect, and reported in *Housing Betterment* for December, 1925, of a plan for the building of a group of cooperative homes for a number of unions in the clothing trade in New York City.

Finding it difficult to secure adequate housing accommodations at reasonable rentals, the members of these unions who, with the higher wages which they are now able to command, find themselves able to pay for their housing accommodations a sum which would warrant the building of modern sanitary houses, have united; and as a trade union proposition have commissioned Mr. Thomas to design for them a group of tenements to be occupied by members of their affiliated bodies, which comprise a vast number of different unions in the clothing trade.

A special corporation, known as the Labor Home Building Corporation, has recently been organized for the purpose of building these houses. A plot has been secured in the Bronx, and on this entire city block a two-million-dollar housing project is to be developed. It is stated that the buildings will accommodate 170 families, and that nearly one-half of the area is to be left unbuilt upon and will be devoted to gardens, following the principle which Mr. Thomas has been so successfully carrying into effect in connection with the Jackson Heights development and his housing project in Bayonne for the Standard Oil Company and others.

"What makes this venture so promising for the future of New York housing," says *Housing Betterment,* "is that it is something that comes from the workers themselves; that it comes from an organized group of workers; that the scheme is a truly cooperative one; that the houses that are to be built mark a distinct advance in the design of such houses, being very much better than required by law; and, finally, that through cooperation it will be possible to rent these houses at rentals that will be within the purchasing power of the occupants."

The Lincoln Memorial at Night

THE Lincoln Memorial, generally conceded to be the finest monument ever dedicated to the memory of a man, is now as beautiful at night as during the daytime. Many public buildings have been floodlighted in various ways, but it remained for Washington to provide simultaneously both floodlighting for one of its most notable structures and improved lighting for its streets.

The District of Columbia has undertaken a comprehensive plan for the relighting of its streets, carrying out the recommendations of the illuminating engineering laboratory of the General Electric Company. As part of the program for relighting the city of Washington, G-E Novalux ornamental lighting units already have been installed in the vicinity of the Memorial. The illumination is ample enough so that the building appears to be floodlighted.

The Lincoln Memorial, at the western end of the Mall between Washington Monument and the Capitol, was erected through public subscription by the people of a nation to the savior of that nation. It was presented to the United States on May 30, 1922, by Chief Justice William Howard Taft on behalf of the Senate Park Commission.

The Memorial is a rectangular structure of white marble with a colonnade of thirty-six Doric columns, one for each state existing at the time of Lincoln's death. Within the central hall is a colossal figure of the Martyr-President, the work of Chester French Lord. On the wall behind this statue is the wording quoted on the front cover of this issue of THE AMERICAN CITY. On two other walls, and separated from the central hall by a row of four Ionic columns, are memorial tablets, on one of which is inscribed Lincoln's Gettysburg address, and on the other his second inaugural address. Above the tablets are two large mural paintings, "Emancipation" and "Reunion," by Jules Guerin.

A Method of Facilitating Left Turns

By Hawley S. Simpson
Traffic Engineer, City of Detroit

THE question of whether a municipality should or should not allow left turns at intersections of arterial thoroughfares is becoming more and more important to officials handling traffic problems in larger cities.

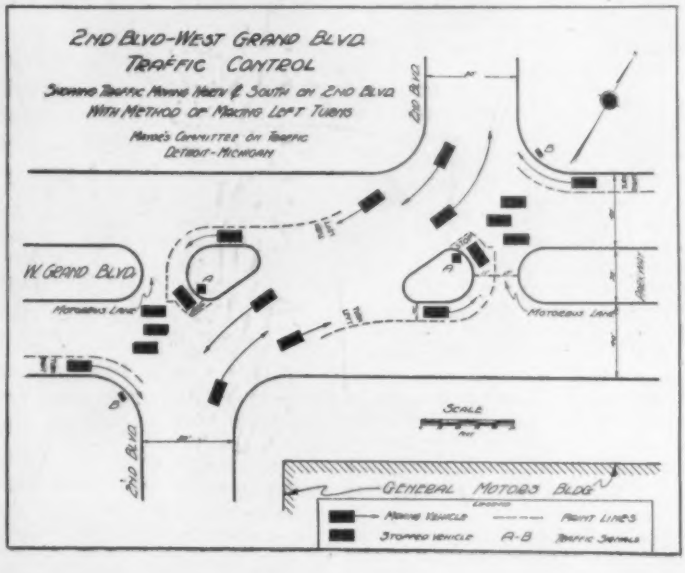
The left turn, from which a relatively small number of motorists derive benefit, undoubtedly causes considerable congestion and often inconveniences the greater number of motorists desiring to pass straight through the intersection. However, the elimination of the left turn does not cure the apparent evil. Additional car-miles are thrown upon already congested streets, and three turns are made at near-by intersections, in effect merely moving the congestion from one intersection to another. It is very often better, therefore, if physically possible, to allow the left turn at the intersection most logically situated.

We are presenting here a solution of the problem at one intersection, not to be considered typical in any way, but interesting as showing possible treatments which may be discovered after a detailed engineering study of a particular location has been made.

Considerable congestion was formerly occasioned here by left-turn traffic. Both streets are very heavily traveled. West Grand Boulevard has a maximum per lane travel from 5 to 6 P. M. of approximately 500 vehicles, while Second Boulevard carries a maximum per lane per hour of 430 vehicles. This condition is far from the possible maximum under "stop" and "go" regulation, but one, nevertheless, of comparative congestion, as the intersection under discussion is about 3 miles from the nominal business center of the city. A maximum number of 6 vehicles make left turns in any one direction during any one interval, a total of 12 vehicles in both directions. To accommodate these motor cars the plan shown was devised. A temporary installation is at present in use, and plans are being drawn for the construction of permanent concrete islands.

The illustration shows the condition as traffic is moving north and south on Second Boulevard, with the left-turn lanes filling up. A motorist wishing to make a left turn from Second Boulevard keeps to the right curb, enters the lane marked "Left Turn" and "stores" around the temporary safety island. When traffic changes and begins moving on West Grand Boulevard, these left-turn cars fall into the moving traffic and move either east or west. An additional lane is kept clear at all times for the turning of motor-busses. The left turn from West Grand Boulevard into Second Boulevard is made in a similar way. Because of the amount of right-turn traffic off West Grand Boulevard, a right-turn lane is reserved solely for motorists making these turns. This lane is kept moving at all times, regardless of whether the traffic signal is red or green.

By this method we have separated left-turn cars from moving traffic, stored them on a portion of the pavement not needed for moving traffic, and released them at the proper time. We have eliminated the element of confusion which enters into congestion, by confining the three distinct types of traffic to certain definite portions of the intersections, with a cor-



responding expedition of traffic and a lessening of the accident hazard.

The proposed new location of traffic signal lights is shown by the symbols A and B. The lights A-A are the primary signals, operating in three directions. B-B indicates auxiliary single directional lights, so placed as to warn motorists crossing north and south of an impending change in traffic. On account of the abnormal distance traversed in this crossing, motorists are often forced to stop in the center of the intersection and await the next green interval, and without the lights B-B no opportunity would be afforded of informing them of the change.

EDITORIAL NOTE.—The Mayor's Committee on Traffic of the city of Detroit, of which the author of the foregoing article is Traffic Engineer, was appointed by Mayor John W. Smith on February 10, 1925, as a citizen's committee to devise ways and means of promoting traffic safety and facilitating the movement of traffic. The committee acts in a strictly advisory capacity to the Mayor, the Common Council and the Police Department; formulates safety and traffic proposals, serves as a clearing-house for proposed traffic measures, and coordinates the safety and traffic work of public and private agencies. Weekly meetings are held and are attended by representatives of the Police Department, the Department of Street Railways, the Department of Public Works, and representatives of municipalities included in the Metropolitan Area. Special invitations are issued to any private organization or city department which may be concerned in matters to come before the meetings.

A Proposed Method of Assessing Paving Costs Against Abutting Property

IN an address on "Municipal Finance for Street Improvements," at the recent annual convention of the American Society of Municipal Improvements, in Des Moines, a plea was made by George C. Warren, of Boston, for the financing of street paving along the following lines:

1. Assess cost of all pavements, resurfacing, and renewals (or at least the greater percentage of cost) against the abutting property which is directly benefited by the improvement.

2. At option of each abutter, exercised within a month of completion of assessment, permit payment of whole assessment in cash or in, say, ten annual installments with interest.

3. At the expiration of the one-month option period, the city issue its "General Obligation Bonds" in round-sum pieces (say, $100, $500 and $1,000) with interest at as low a rate as will insure sale of bonds at not less than par. The terms of bonds to be serial, coincident with time of due dates of assessment.

4. A law providing that such "Improvement Bonds," being secured by assessments against abutting property worth many times the assessments, shall be not included against the limit of bonded indebtedness provided by law. This on the same principle that water-works and other bonds issued against property, having a direct salable and income-bearing value, are exempted or deducted from total liability in determining the amount of net liability to which the legal limit is fixed by law—generally a certain percentage of assessed valuation.

5. For the purpose of most economic contract, the city issue its temporary notes or bonds, from the proceeds of which the contractors will be paid in cash on monthly estimates, leaving them in the position of contractors, rather than contract-financiers.

6. Make it absolutely obligatory upon the municipalities to foreclose immediately upon delinquency of one installment.

7. Provide for the setting aside by the city out of its general fund, a fund to be known as a revolving fund to take care of delinquent assessments on local improvement bonds.

8. Provide a section in the code dealing with the sale of property by the county for delinquent taxes, so that the city must at the time of the sale protect all liens against the property, including the street improvement taxes which may have been issued and for which the property to be sold is liable.

The speaker expressed his belief that along this line is the one way that cities can generally modernize their pavements to meet the public demand and on the basis of least cost to the city and abutting taxpayers and the least annoyance and expense to all concerned. The advantages of such a plan were summarized as follows:

(a) Only limit of improvement available is the number of abutting taxpayers who are required to pay the cost of improvements and who generally welcome this economic improvement of their properties.

(b) Every taxpayer having an immediate or prospective financial interest keeps himself well informed regarding pavements, with a maximum of intelligence in action as to types and time for improvement.

(c) Lowest practicable cost consistent with first-class improvement.

(d) In so far as this system in more or less modified form has been adopted, we have the best-paved cities in the country.

Protection and Convenience—Two Motor Services for Cities

AETNA HOSE COMPANY NO. 1, CLARKSVILLE, IOWA, AND ITS STOUGHTON FIRE-TRUCK
This illustration is published through the courtesy of Henry Klunder, Fire Chief, Clarksville, Iowa

TWO HELPFUL PARAGRAPHS FROM THE 1926 MUNICIPAL INDEX, MOTOR TRUCK SECTION

In any field of motor transportation it is necessary to house and repair the equipment at a point as centrally located in the territory covered as circumstances will permit. Conditions vary as to the extent of housing requirements, some larger cities requiring facilities at either end of the community, but the more nearly this property is focused at one point, the less will be the supervision and maintenance expense. The maintenance of the city's property should be under the jurisdiction of one person.

In order that all the properties may be maintained, it is vital that periodic inspection be made to determine the condition of the property and that this inspection be placed in writing and the report passed along to the man who is responsible for the maintenance of the property.

INTERNATIONAL ONE-TON SPEED TRUCK USED BY RICHMOND, VA., FOR REFUSE REMOVAL

This is one of two trucks of this type equipped with short dump bodies, facilitating travel through narrow, crooked alleys which cannot be negotiated by trucks of heavier rating. These trucks stand up under unusually hard operating conditions and at the same time get in and out of narrow places with great facility, according to the chief mechanic of the refuse disposal department

Boy Scouts as City Fathers

By E. S. Martin

THE stern faces stared down from their gilt frames. There were a Colonial mayor in white wig and flowered waistcoat, and a martial mayor from Revolutionary days, a scholarly mayor, a politician, a reformer, and others who had played their parts in making the history of Philadelphia. Through many years they had watched their successors in the highest office the city has to bestow. But never had they witnessed a scene more novel or beheld so youthful a candidate for the Quaker City's distinction as on that April day last year, when Mayor Pollock, 15 years old and a member of Troop 50 of the Boy Scouts of America, took over the government of the city.

After a Hot Campaign

The Mayor and his Council were elected after a hot campaign between a "Washington," a "Roosevelt," and a "Lincoln" party, in which the local press was interested to the extent of several columns daily, and which absorbed the attention of the parents and friends of the candidates, and of the several thousand Boy Scout voters. Eight thousand ballots were cast. A Receiver of Taxes, a City Treasurer a City Controller, a District Attorney, and a Judge of Common Pleas Court were also elected from among the young candidates. The event was one of the features of Boys' Week, and served to focus the attention of the city as nothing else, perhaps, could have done, on its greatest asset—its boys.

"You've come at an opportune time," said Mayor Kendrick to Mayor Pollock. "You can iron out the difficulties that have to do with the few odd millions of the taxpayers' money.

Mayor Pollock's plank was as follows:

"Philadelphia Scouting bigger and better in every way during 1925; to interest older people in Boys' Week, Scouting, and other boy activities."

MAYOR CARL M. GARVER TURNING OVER THE GOVERNMENT OF DES MOINES TO EAGLE SCOUT KENNETH NELSON, ACTING MAYOR AND SUPERINTENDENT OF PUBLIC AFFAIRS

The Use of It

That gives the basic principle of the Boy Scout municipal administrations that have become frequent in the forty-eight states. It means more to the city than a recreation for its officials, and more to the boys than a chance to have their pictures taken. Such an occasion means that the public attention is focused upon municipal affairs. Every one likes boys, and even the citizen who was too languid to go to the polls and vote at the last election (some 50 per cent of the population were in this class) takes an interest in the idea of boys holding city jobs.

In Seattle They Get Things Done

Seattle, Wash., found it an interesting experiment recently when young Scout Mayor John Moriarty and a corps of Scout deputies held session in the city council chambers. Fire whistles and sirens heralded the event; flags were flying and the Boy Scout band was playing on the city hall steps. At police and fire stations and on traffic duty, Scouts were stationed all day. The young officials conducted a surprising amount of business for heads so little experienced in civic affairs. Here is what they accomplished:

Scout Chief of Police received petition asking investigation of the enforcement of the anti-cigarette law.

Committee of Scouts appointed to investigate dangerous traffic points in Seattle.

Plans formulated to organize traffic and safety committees in all schools.

Approval of plan for advisory board, composed of business men to cooperate with City Council in matters of finance.

Proposal that city officials take the Scout oath in connection with their oath of office.

MAYOR JOHN L. BACON, OF SAN DIEGO, CALIF., PRESENTING THE CITY GAVEL TO EAGLE SCOUT WILLIAM STILLWELL, ACTING MAYOR FOR ONE DAY

What It Gives the Boys

To the boys themselves, the future citizens of their city, such an experience is invaluable. It is these boys who are going to carry on what we have begun. They are going to direct our traffic, manage our schools, be elected to our city councils, and sit on our judicial benches. How important it is that these trustees of ours receive the right sort of training, and that they are taught the responsibilities as well as the privileges of citzenship! The boy who has for one crowded hour thrilled to the pride of holding a government office, is always going to maintain an eager interest in municipal affairs, and no boy who has ever worked through a campaign to elect one of his friends will ever grow into an indifferent citizen. Nation, state, and municipality realize that the Boy Scouts of America does train for citizenship, and are giving Boy Scouts a recognition that no other generation has ever received—placing city governments in their hands for definite periods of time, with instructions for guiding the ship of state, or a sort of sub-initiation into civic responsibility.

"When a Scout does his best, something happens," remarked a local paper, "judging from the results of the brief rule of the city which our young citizens enjoyed."

Some of the cities which have had Boy Scout administrations recently include Lancaster, Franklin, Oil City, Chester, and Meadwithe, Pa.; Superior, Wis.; Des Moines, Ia.; Fresno and Madeira, Calif.; Johnson City, Tenn.; Williston, N. Dak.; Helena, Mont.; Kalamazoo, Mich.; Lincoln, Nebr.; Beaumont, El Paso and Galveston, Texas; Chicago, Ill.; St. Louis, Mo.

Following a city campaign the duly elected Scouts of Johnson City, Tenn., filled the various municipal positions one entire Saturday. A local paper comments thus on the occasion:

"The object of the move was to familiarize the Boy Scouts with their city government. Scouting is a citizenship training program, and in no way can the boys become better acquainted with the duties of city government than by actually holding down the various jobs.

"The positions of mayor, commissioner of finance, and commissoiner of streets were filled by the boys, and the police force made up of husky Scouts. Traffic policemen at various down-town business centers kept the pedestrians and automobilists moving at a lively pace. The Scouts worked most conscientiously and showed an adequate grasp of the scope of their respective duties."

Cooperation with Police Departments for Safety on Streets and Playgrounds

What has been termed "one of the most dramatic phases of cooperation between the Scouts and the public in the whole history of Scouting" is the cooperation with the municipal police departments. In New York City more than 20,000 Scouts have an opportunity to become official guardians of public safety. A special pamphlet of instructions has been prepared under the direction of the Safety Commissioner of the New York Police Department, and the Scouts are termed the Boy Scout Safety Service. A similar plan of cooperation is successfully employed in other cities of different sizes. It is in connection with schools that Scouts render notable service. The boys patrol definite beats in streets adjacent to school buildings. It is their duty to keep the children in line at dismissal time, and to escort them safely at the crossings. The Scouts also maintain general supervision over playgrounds. They are prepared to render first aid in an emergency, and to improve unsafe conditions and hazards to life and limb. Scouts are efficient aids to the police in traffic control, and in handling crowds. It is a hard-hearted man who can resist the request of a smiling Scout, and it is a fact that these boys always have the sympathy of the crowd with them.

Boy Scout Firemen Help in Fire Prevention and First Aid

Boy Scout firemen are real assets to a city. Their duty is to stop the fire before it happens—safety first. These organized units receive their instruction from some veteran in the municipal fire department. They make regular inspections for fire hazards in their districts. Are fire-escapes clear, dark hallways unencumbered by rubbish, and gasoline, kerosene, and other inflammables stored in safe places? They learn different types of fire-fighting apparatus, and how to administer first aid. In the event of fire they help the police preserve the fire lines, act as messengers, and otherwise render efficient service. Nearly 10,000 Scouts won a special merit badge in firemanship last year.

Their Sixteenth Anniversary

From February 7 to 13, the Boy Scouts of America celebrates its sixteenth birthday. Prominent officials will observe the occasion by enrolling as honorary Scouts. There are to be public ceremonies in cities large and cities small, and the daily press and the national magazines will, as in years past, do their share towards making Boy Scout week a success. There could be no better time for featuring a Boy Scout city administration than the Boy Scout Anniversary Week. As an investment, it will pay your city rich dividends in dignified publicity, and increased interest from the general public. The educational value to the boys is something that can hardly be measured. Let's get together and boost our future trustees, the Boy Scouts of Amreica.

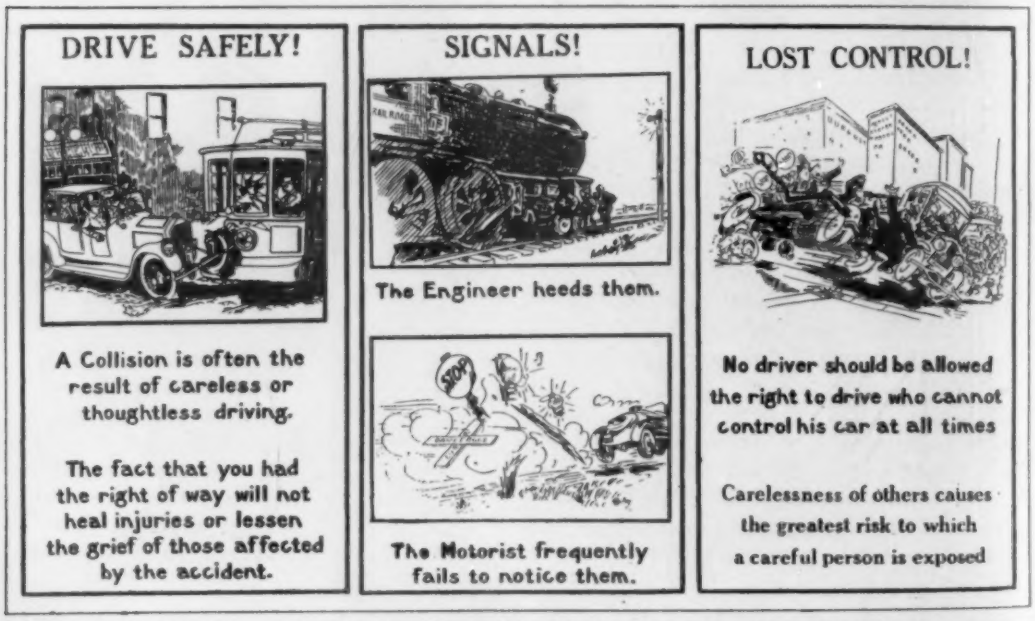
Public Safety Exhibits Available

THE Engineering Extension Department of Iowa State College has prepared nearly 100 hand-colored exhibit panels to present visually various phases of public safety in home, street, shop, and industry. Each panel carries a specific thought expressed by cartoon sketch, photograph, drawing, or terse, pointed statement calling attention to the cost of accidents, thoughtlessness, indifference, or lack of information.

These panels cover the following subjects: general safety; safety in the home; automobilists; industrial safety; fire prevention and control; safety in the street; and playgrounds. They are neatly mounted in wood frames about 30 x 48 inches, with angle-iron legs for supports. Seven panels may be packed in a special fiber shipping case. The approximate weight of a full case is 150 pounds.

This material is loaned without cost to any chamber of commerce, library, fair committee, public school, civic association, community center, Y. M. C. A., industrial organization, or educational institution in Iowa. The borrower is responsible for express charges to and from Ames.

Many favorable comments have been received on these panels from users throughout the state. The booking and physical distribution are handled by the Visual Instruction Service, at Ames, Iowa.


DRIVE SAFELY!
A Collision is often the result of careless or thoughtless driving.
The fact that you had the right of way will not heal injuries or lessen the grief of those affected by the accident.
SIGNALS!
The Engineer heeds them.
STOP
The Motorist frequently fails to notice them.
LOST CONTROL!
No driver should be allowed the right to drive who cannot control his car at all times
Carelessness of others causes the greatest risk to which a careful person is exposed

THREE OF THE PANELS IN THE TRAVELING EXHIBIT OF THE IOWA STATE COLLEGE ENGINEERING EXTENSION DEPARTMENT

PRIZE-WINNING DESIGN OF MARTIN BECK

An Aeroplane Landing in a Metropolis

By Harry B. Brainerd
Architect and City Planner

THROUGH the generosity of Harry Allen Jacobs, architect, a prize of $100 was recently offered to the students in architecture of the Beaux Arts Institute of Design for the best design of an aeroplane landing in a metropolis.

The program for the competition read as follows:

"The necessity of finding a method of landing aeroplanes in a large city has been recognized by all since the aeroplane has become a machine for commercial use. The United States Government, for example, has studied various methods of solving this problem in order that the aeroplane mails can be handled with greater dispatch. Many imaginative and ingenious solutions involving the use of great roof areas or the development of open spaces in great cities have been proposed, but never in a form to create any wide-spread recognition or discussion.

"This problem can therefore be handled as one without limitations, save that it must concern itself with the arrival and departure of aeroplanes in the heart of a great metropolis. It can be assumed that aeroplanes can rise and descend vertically, as the helicopter will doubtless be perfected within a very short time. . . .

"In awarding the prize, the jury will give great consideration to an imaginative, well-presented and well-expressed idea."

Martin Beck, whose design won, suggested the use of high, terraced buildings, incorporating the idea of a typical city block unit as an upstanding support, or the piers of a bridge as supports for the landing. His is an architectural study in mass.

The principal building calls for a plot about 1,400 feet square in which is a structure having an interior court and four towers about 950 feet high at points midway on each side. These towers support a superstructure 300 feet more in height, comprising the landing proper with a level 30 feet beneath for repair shops, waiting-rooms, and other accommodations for passenger and mail service. Elevators would connect with surface and subsurface transportation lines. An alternate idea

in a high building support calls for towers on the corner of a square, and arched rather than cantilevered support for the landing.

In the indication of a bridge to carry an aeroplane landing space of about 350 x 600 feet, steamship wharves are provided at the base of the piers. Rail connection with the shore is possible by a lower deck on the bridge approaches.

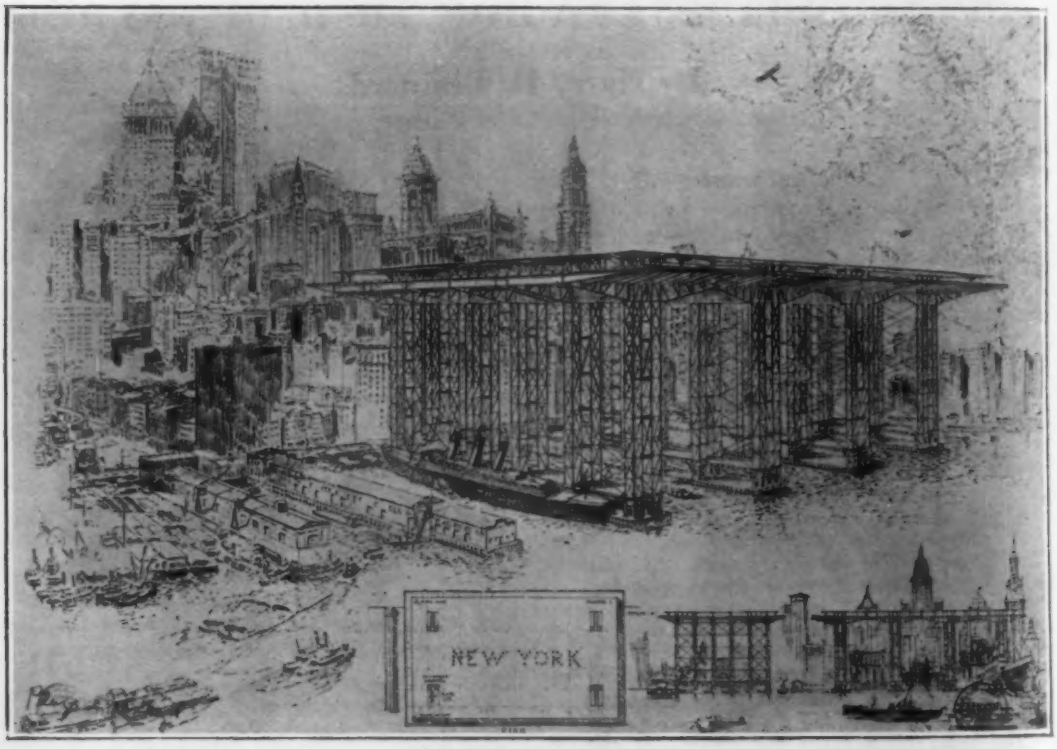
H. B. Brainerd and A. Hammarberg, a close second, recommended a steel structure suitable for erection in units over steamship piers or railroad yards, in order that quick connection with surface transportation facilities may be possible. Practical considerations such as location with regard to the city plan, present-day aeronautical requirements as to landing, commercial demands, cost, and structural feasibility, governed their solution of the problem.

The location of landing fields in actual city planning is frequently difficult owing to the irregular, or rolling, terrain that surrounds our cities. When a sufficiently large, level tract with rail connections can be found, it is apt to be low ground and best suited for industrial use. Other open spaces within city limits are apt to be preempted for park purposes, and public sentiment rightly favors retaining them for that purpose exclusively.

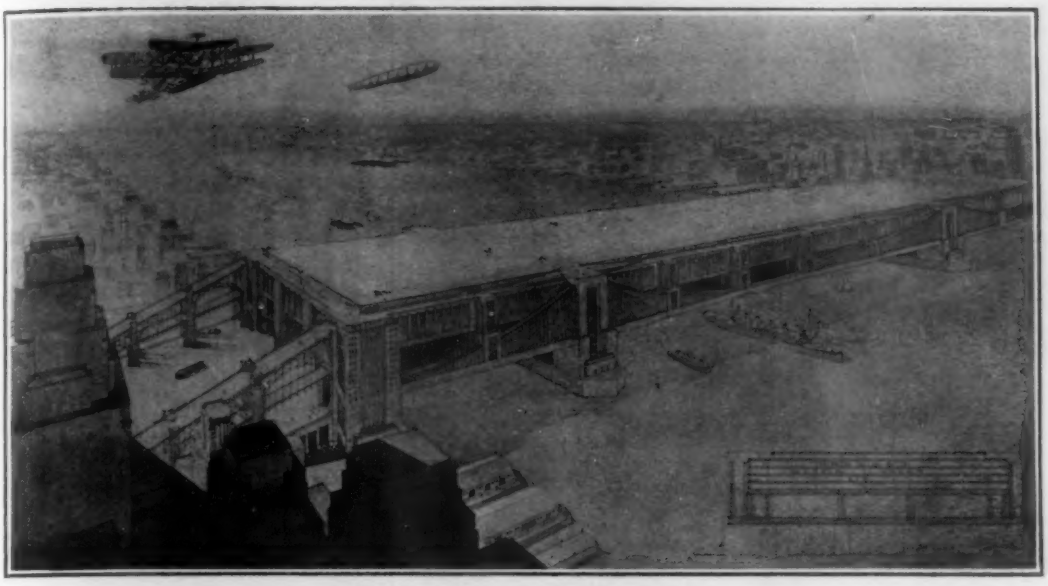
Major William Hensley, commanding officer of Mitchel Field, has said that aeroplane landings to be most useful should be located within reach of land transportation; that the site should be capable of expansion and that it should be as near the center of the city as possible. He says that he knows of only one location in New York City that would fill all these requirements and that even there an expensive bulkhead and fill would be necessary.

Regarding the design of landings, Major Hensley said the minimum size should be about 900 yards along the line of the wind, but that 600 to 700 yards would be possible if no engine trouble occurs. Obstacles offside that are 100 feet high void 700 feet of landing space. He also said that the shape should preferably be square and that "L" shapes or rectangular shapes are less useful.

The requirements of present-day landings are: panels 3 x 15 feet to mark the best approach; identification marks in the northwest corner of the field; the name of the town in large black letters on the top of the railroad station; a wind indicator in one corner of the field 30 feet off ground; communication by telegraph; hangars, shops and gasoline filling stations.



DESIGN OF H. B. BRAINERD AND A. HAMMARBERG, AWARDED SECOND PLACE



DESIGN OF RAYMOND P. HUGHES

With these requirements in mind, Messrs. Brainerd and Hammarberg worked out their design. The yearly capacity of a landing of this sort 1,000 by 1,000 feet is estimated at 30,000 planes of the type now in use, that is, 30,000 arrivals and an equal number of departures. On the assumption that each passenger plane carries four passengers and that the mail and freight planes carry an average of 1,500 pounds, and assuming one-third of the planes to be passenger planes and the other two-thirds to be mail and freight planes, the yearly capacity will amount to 80,000 passengers and 30,000 tons.

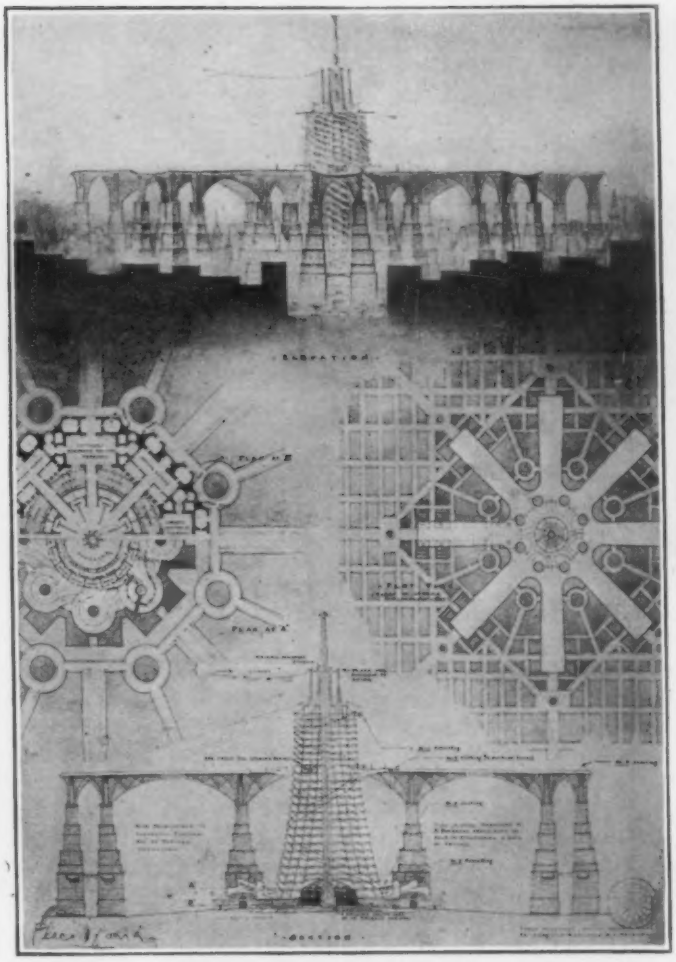
The structure is provided with two levels, an upper level for landing and starting only, and 30 feet below a service level for repair shops, gasoline filling stations, waiting-rooms, etc. This lower level is also provided with a cantilevered extension to serve as a safety cage in case of mis-landing. Specially designed blind lifts are provided for transferring planes from the landing deck to the service level. Elevators also run from the service level to the piers below to convey passengers and freight.

The height of the landing would depend somewhat upon its surroundings. For this reason locations over piers or railroad yards, or in any place where the use of land would be unaffected by this type of superstructure, are preferable.

The structure under consideration has a height of 400 feet above sea-level and a landing area of one million square feet.

Raymond P. Hughes came forward with an elaboration of the idea of constructing a deck over the piers of a bridge, as was also indicated in the winning design. In this case, however, several levels for repair shops were provided and ramps for automobiles from the upper level to the roadway of the bridge.

Though Frank Martinelli's design took fourth place, he has some distinctive ideas. His design provides an anchorage for airships as well as a landing for aeroplanes and helicopters. This design has been described as a spoked wheel with a corkscrew corseting its hub, the landings being as many as the spokes, and the screw the runway down which the planes are conveyed to the ground. It is supposed in this scheme that planes would land on one of the radiating levels 800 feet high and 600 feet long supported at the outer ends by thirty-two skyscraper hotels in groups of four each, and at their inner ends by eight office buildings having railroad terminals or large waiting-rooms beneath. Planes pass from the landing to the central tower and coast down a spiral by overhead tracks to a floor 50 feet above the ground, discharge passengers and freight and continue around a loop to a departing platform. After loading, they spiral upwards by their own power to take off at high speed at the 1,100-foot level, or 300 feet above the landing stages. Upon leaving the planes at the 50-foot level, passengers may use a circular moving sidewalk overlooking the central concourse below for quick arrival at their de-



FRANK MARTINELLI'S DESIGN

sired exit.

Departing passengers may arrive at this airport via eight super-highways under the above-mentioned aeroplane landings, or by eight avenues converging respectively at the alternate railroad stations or waiting-rooms at the base of the structure. Taxis ramp down to an underground parking space 600 feet in diameter, and passengers may ascend to the 50-foot level by means of escalators to enter the aeroplanes and helicopters, or to the concourse at the ground level, where they may ascend to the dirigible mooring at the 1,375-foot level, or to the observation tower by means of a spiral elevator which has four tracks leading upwards and four leading downwards. The observation tower is 1,700 feet high and has an enclosed platform at the top 50 feet in diameter, to house the weather bureau and signal station.

The outstanding advantage of this scheme would seem to be in the speed of handling a large number of planes with rapidity. It is estimated that planes could be dispatched every four minutes from each of the eight sets of tracks, a total of 120 per hour. Space in the interior of the tower provides for the storage of 348 planes of 100-foot wing spread, and shops for fuel, repairs, etc. One of the attractive features of this scheme is the possibility of illumination.

The designs placed first, second and fourth were prepared in the architectural atelier Corbett-Koyl, New York City, and the design awarded third place was done at the Columbia University extension atelier.

Automobile Fatalities Continue to Increase

THE Department of Commerce announced on December 10, 1925, that the returns show 15,528 deaths resulting from accidents caused by automobiles and other motor vehicles (excluding motor-cycles unless in collision with automobiles) to have occurred during 1924 within the death registration area of the United States (exclusive of Hawaii), which area contains 88.4 per cent of the total population. This number represents a death-rate of 15.7 per 100,000 population, as against 14.9 in 1923, 12.5 in 1922, 11.5 in 1921, and 10.4 in 1920.

In the 34 states for which data for 1920 are available, the actual number of these deaths increased from 8,828 in that year to 13,468 in 1923, and 14,437 in 1924, the corresponding rates for these three years being 10.3, 15.1 and 16.

The Bureau of Census assigns the cause of death from collisions between two vehicles to the heavier vehicle; therefore, these totals do not include collisions between automobiles and electric cars and railroad trains.

The Interstate Commerce Commission reports 1,688 deaths resulting from collisions between automobiles and railroad trains. Of this total, 1,532 occurred in registration states. However, in estimating the automobile fatalities this number should not be added to the 1924 state figures, for in all probability many reported to the Interstate Commerce Commission as collisions were reported to the Bureau of the Census as automobile accidents.

Forward Steps in Municipal Affairs

Cincinnati's Success in Smoke Abatement

CINCINNATI, OHIO.—This city was formerly credited with being the smokiest city in the country—even worse than Pittsburgh—and perhaps, at times, deserved the reputation. It now enjoys the distinction of being the least smoky of any large city in the United States where bituminous coal is the fuel generally used.

In the old days the city was covered with a cloud, apparently in mourning for her natural beauty so thoroughly hidden under the pall of smoke and soot. In the streets the soot swirled and eddied with each passing breeze. Nearly every office man kept clean collars in his desk, and white dresses were taboo among the ladies. But as there is a limit to human endurance, there came a time when nine public-spirited Cincinnatians met and decided that there should be a lessening of smoke in Cincinnati, and formed the Smoke Abatement League.

Through the agitation of the members of the League, was born the Cincinnati code of anti-smoke ordinances, which established methods of furnace construction and boiler setting, and provided for automatic mechanical stokers, smokeless heating boilers, improved firing methods on locomotives, and a Department of Smoke Inspection to enforce the law.

At present the anti-smoke forces in Cincinnati consist of the Department of Smoke Inspection, the Smoke Abatement League, and the Railways Smoke Inspection Bureau. The latter two organizations may be considered the right and left bowers of the city department. The League is maintained by funds from the Community Chest and private subscription; the Bureau is maintained jointly by the railroads entering this terminal. That "harmony is the strength and support of all institutions" is demonstrated by the beneficial results for the citizens of Cincinnati of the harmonious relations which have always existed among the three bodies. Our policies have been education and helpful cooperation, with prosecution only when required by the most urgent necessity.

Nearly all the clubs of any moment in Cincinnati have smoke committees which lend their moral support—frequently of practical value. We have endeavored to interest the local bodies of engineers and firemen, both stationary and locomotive, in the manner of fuel saving through smoke prevention, and as a consequence we have a great many valuable smoke inspectors in the plants and on the locomotives. It is a matter of pride with the operators of plants and locomotives to have a clean smoke record. Violations from power-plants are few, and the violations from locomotives have decreased from 10 per cent. to less than 2 per cent in the past ten years. All this improvement has been made with bituminous coal of volatile matter ranging from 30 per cent to 40 per cent.

Ninety per cent of the smoke made in Cincinnati during the heating season comes from residences where cheap warm-air furnaces or house-heating boilers are in use, high volatile coals being burned. There is, however, a marked tendency of home owners to specify heaters which are constructed for the smokeless combustion of soft coals, and many others are remodeling their old heaters or installing smoke-preventing equipment thereon.

We are greatly pleased with the marked improvement in atmospheric conditions in our city since the anti-smoke forces began to work at their job. It requires persistent and determined effort to keep the air even partially clean in a city situated so unfavorably topographically for our work; the basin of the city being surrounded by hills which, under certain atmospheric conditions, tend to hold the smoke within the valley.

What has been done in Cincinnati may be done in any other city by determined effort.

GORDON D. ROWE,
Chief Smoke Inspector.

Handling Street Traffic in Mobile

MOBILE, ALA.—To the understanding and cooperation of the local citizens is due, in a large degree, the effectiveness of the traffic-control system now in operation in Mobile.

When the present site of Mobile's business center was laid out by the founder of the city in the year 1711, vehicular traffic regulations had not become a serious problem of the time. Following European practice, the streets were built in narrow widths. Some of these thoroughfares have since been widened as opportunity afforded, and all new streets have been laid out along modern lines, but in the old French section of the city, the streets, with one exception, are still too narrow for the convenience of modern traffic. Thus when the automobile came to be a common possession among Mobile families, and tourists motoring along the Old Spanish Trail, the Florida Midwest Highway, and the state's trunk lines, poured through the city in steadily increasing numbers, congestion in the down-town streets became acute. The construction in Mobile of the state-owned port terminal system, now under way, presented a still further need for preparation for increased traffic.

Before attempting a solution of the difficulty, members of the City Commission and Chief of Police Warren F. Burch made a tour of a number of cities through the country, studying the various methods of wrestling with traffic problems. Based on their knowledge of experience elsewhere, the commissioners then proceeded to devise a system suited to Mobile's particular needs. "No Parking" and "One-Hour Parking" areas were established and plainly marked with metal signs. "One-Way" streets were designated, marked with arrows at the turns and with illuminated signs at approaches from tourist-traveled highways. Street-corner signal lamps, manufactured by the Crouse-Hinds Company, Syracuse, N. Y., were installed at the more congested intersections, with flashing alternate red and green signals, timed at 25 seconds each, and an amber preparatory signal light flashing between changes.

There has been no harshness nor impatience on

PEDESTRIANS OBEYING MOBILE'S TRAFFIC SIGNALS

the part of our traffic officers in the enforcement of the simple traffic rules necessary to make the system effective. Mobile's citizens were asked to play the game—and they do. Officers finding visitors violating rules, politely call their attention to the fact, but speeders and reckless drivers, whether citizens or transients, are arrested.

Our experience has taught us that if the resident population can be educated to obey the traffic signals, through an understanding that the rules are made for their protection, the matter of handling visitors will largely solve itself; for it has often been observed that the newcomer is guided in his attitude toward the traffic laws by the action of the majority around him.

HARRY T. HARTWELL,
Commissioner.

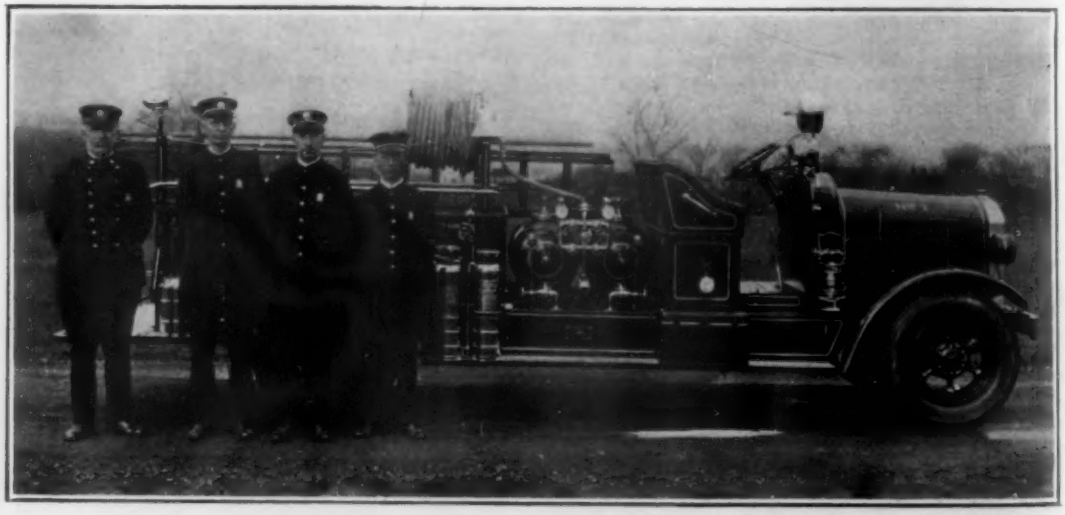
A Fire-Truck That Is Equal to Its Job

HAWTHORNE, N. J.—The fire-fighting equipment of this community was improved last November by the addition of a new fire-truck with the most up-to-date equipment. While it has not yet been necessary to put this truck to a severe test at a fire, the apparatus has been driven over 350 miles and has given great satisfaction in the ease with which it can be handled.

The equipment, which was manufactured by the Foamite Childs Corporation, includes two 35-gallon soda and acid tanks, one hand-type soda and acid extinguisher, and one Foamite hand extinguisher. The hose body has a capacity of 1,000 feet of 2½-inch hose, and carries in addition 150 feet of chemical hose. One main searchlight with an 11-inch reflector is mounted on the dashboard, and two small marine searchlights on rear standards are mounted on ball sockets so that they can be used in any direction. The chemical tanks are equipped with separate pressure gages, with individual lights over each. The entire equipment is mounted on a Fisher Fast Freight chassis of 1½-tons capacity.

A particularly pleasing feature of this truck is its low-hanging body, which has the double advantage of lessening the danger of skidding or overturning on wet pavements, and of permitting hose to be loaded and unloaded with ease.

PETER BRAEN,
Chief, Hawthorne Fire Department.



THE NEW, WELL-EQUIPPED FIRE-TRUCK OF THE FIRE DEPARTMENT IN HAWTHORNE, N. J.

Fine Swimming Pool Financed from City Budget Savings

SALINA, KANS.—When a total saving of about $25,000 was realized last year from the budgets of the several municipal departments, the city of Salina decided to devote those funds to the construction of a municipal swimming pool, the need for which had been discussed on many previous occasions. The City Engineer, William Theisner, was authorized to submit plans for a pool that could be built at a cost within the amount available, and was subsequently asked to undertake the actual construction work, in order that the contractor's profit might be eliminated.

Excavations for the pool were started in the fall of 1924, and all drains and sewer connections were put in at that time, but actual work on the pool and buildings was not commenced until the spring of this year. The pool is built somewhat in the shape of a bean or kidney, with the deep water across the wide end. It is 250 feet long and from 100 to 150 feet wide, with a capacity of approximately 1,000,000 gallons of water. About 1,000 bathers can be accommodated comfortably in the pool at one time, and the depth of the water is varied so as to satisfy all needs.

The water-supply, which is drawn from the city mains and enters the pool through two openings in the floor, is so treated that there can be no question as to its sanitary condition. A circulating system is provided in which the water is pumped from the pool through the pump pit, where it is treated by a Paradon type DBMI chlorinator and discharged into the line going back to the pool. A 4-inch double suction centrifugal pump, manufactured by the American Well Works, is used to circulate the water.

Through the purchase of some fine equipment, consisting of three hickory diving-boards, a large double-chute slide, a small single-chute slide, a spiral slide, and a number of marine monsters, all products of the Hill-Standard Company, both youngsters and adults are assured of the maximum amount of fun at the pool during the summer. And since adequate provision, in the way of expansion joints in the walls and floor of the pool, has been made, to allow for freezing, it is expected that the pool will continue to be popular during the ice-skating season. From a series of street lamps and floodlights erected along the 8-foot concrete sidewalk that extends around the entire pool and pavilion, the pool will be well illuminated for use in the evenings.

SALINA SWIMMERS

The bath-house, properly equipped with shower-baths and toilets, provides 140 individual dressing-compartments, as well as two large dressing-rooms for use on busy days. The basket system of checking is used.

At the opening of the pool on June 15, 1925, there was an estimated attendance in the park of between 5,000 and 6,000, and from then up to September 10, 55,000 bathers were recorded. Such a patronage as this in a city of only 17,000 population is considered ample proof that the new enterprise is a welcome one. From the proceeds of admission charges of 10 cents each, with additional charges of 5 cents per towel and 10 cents per suit, it is expected that the pool will pay for itself within a very few years.

W. A. LAYTON, City Manager.

THE MUNICIPAL SWIMMING POOL AT SALINA, KANS.

LIBRARY SERVICE ROOM AT ST. VINCENT'S HOSPITAL, SIOUX CITY, IOWA

service in that institution, equipped by the hospital authorities, entirely of their own volition, at a cost of $700. The library recently moved from a basement room to this well-equipped room in a prominent location on the main floor.

It may also be of interest to mention here the unusual practice adopted by the Sioux City Public Library in connection with the publication of its annual report. Instead of issuing the report in the usual pamphlet form, through which it reaches a very limited number of people, the majority of whom are already fairly familiar with the work of the library, it has been our policy for the past few years to issue the report as a paid advertisement in the local newspapers. In this way the general public is reached and the cost has proved to be little more than that required for the publishing of a pamphlet report.

CLARENCE W. SUMNER,
Librarian.

Hospital Library Service Appreciated

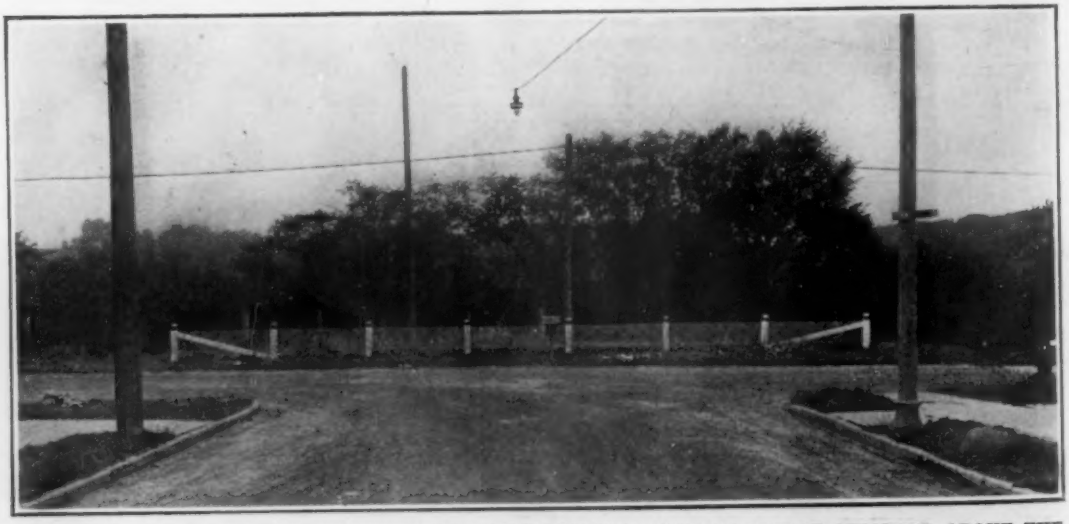
SIOUX CITY, IOWA.—Over six years ago the Sioux City Public Library inaugurated professional library service in the hospitals of this city. During that time approximately 300,000 books have been borrowed by patients, and the story hours conducted regularly by our Hospital Librarian and her assistant have been eagerly attended by groups of young people. At the start only six general hospitals were included, but the work has been extended from time to time until fourteen institutions are now being served.

The question of whether or not hospital authorities have appreciated the value of this library service has been answered in a most gratifying manner by St. Vincent's Hospital. Reproduced herewith is a picture of the present quarters of the library

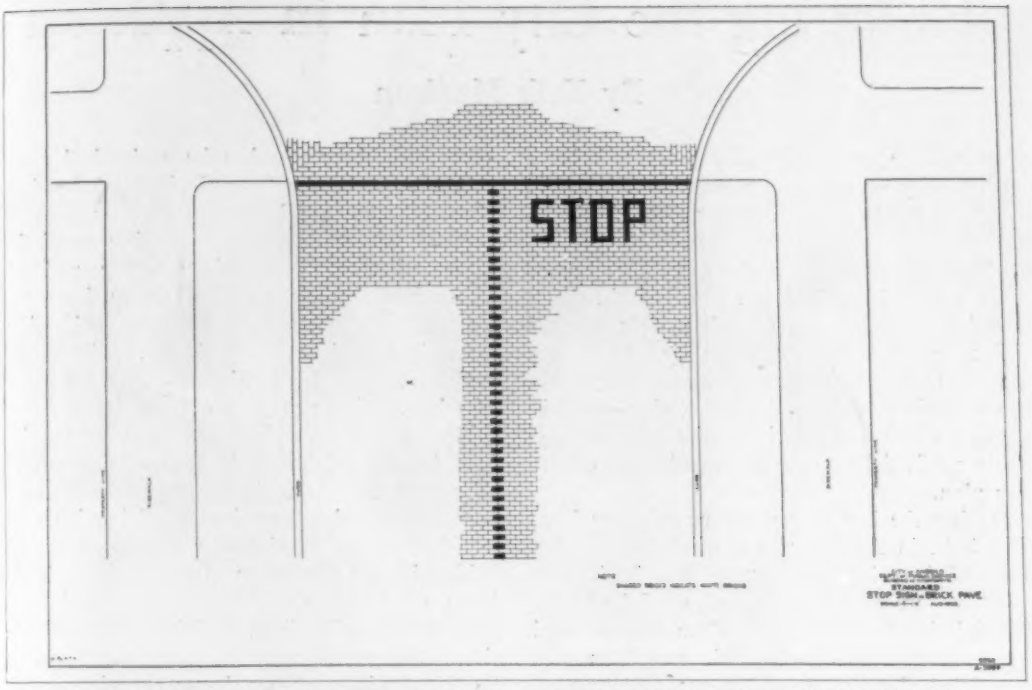
Wire Guards for Dead-End Street Protection

MILWAUKEE, WIS.—To prevent serious traffic accidents on streets ending abruptly at precipices along the banks of the three rivers running through the city and on the many other dangerous dead-end streets overlooking railroad embankments, Milwaukee has commenced the installation of Page Hi-Way wire-link guards at such points.

These dead-end streets have been a continuous source of danger to autoists, particularly at night and to strangers in this vicinity. For a number of years these points have been protected by what appeared to be sufficiently substantial railings, but the inadequacy of that type of barricade was proved last year when an autoist crashed through the



DEAD-END STREET PROTECTION INSTALLED AT HARTFORD AND CAMBRIDGE AVENUES, ABOVE THE MILWAUKEE RIVER VALLEY, MILWAUKEE, WIS.



"STOP" SIGN BUILT INTO THE PAVEMENT OF MAIN THOROUGHFARES IN AKRON, OHIO

wooden planks to the railroad tracks below, with fatal results.

The new wire guards have been put to the test on several occasions and so far have proved very satisfactory. The general neat appearance of the new guards is an additional point in their favor.

CHARLES O. DAVIS,
Superintendent, Bureau of Street Sanitation.

"Stop" Signs Built into Main Highway Pavements

AKRON, OHIO.—On the main thoroughfares of Akron the type of traffic "stop" sign illustrated herewith has been adopted as standard. These signs are built into the pavement with white porcelain or rubber blocks of the same size as the paving blocks. When constructed in a new pavement, such a sign, including the sidewalk and center lines as shown, costs from $50 to $60. If the sign is built into an existing pavement, the cost of tearing out and replacing the pavement must of course be added to this cost.

This type of "stop" sign has proved very satisfactory in this city and it is planned to continue its installation.

E. A. KEMMLER,
Highway Engineer.

One-Fourth of City Automobile Fatalities Due to Outside Accidents

THE Department of Commerce announced on January 23, 1926, that telegrams from 24 cities indicate that 25 per cent of the automobile fatalities in these cities in 1925 were due to accidents outside of the city limits.

Ordinarily, automobile fatality figures show the number of deaths which occurred in specified places. Consequently, a city with hospitals is often charged with many deaths due to automobile accidents outside of the city limits. Schenectady had 25 deaths reported in 1925 (53 weeks) from automobile accidents, but only 8 of these were due to accidents within the city limits. Camden had 40 deaths, but only 17 of these were due to accidents within the city limits.

Considering only the 22 cities for which the rates based on fatal accidents within the city limits have been computed, Springfield, Mass., and Fall River are tied for the honor position with a rate of 7.7 per 100,000 estimated population, while San Diego shows the highest rate, 32.8.

City	(A)	(B)	(C)	(D)
Birmingham	51	37	24.4	17.9
Camden	40	17	30.6	13.1
Dallas	49	45	24.9	23.1
Denver	38	25	13.3	8.9
Duluth	24	18	21.4	16.2
Fall River	17	10	13.0	7.7
Grand Rapids	31	23	19.8	14.9
Jersey City	63	62	19.7	19.6
Kansas City, Mo.	86	75	23.0	20.3
Lowell	27	19	24.1	17.1
Memphis	49	24	27.6	13.7
Minneapolis	75	60	17.3	14.0
Oakland	42	41	16.3	16.1
Omaha	33	31	15.3	14.6
Pittsburgh	176	159	27.4	25.0
Providence	79	50	29.0	18.6
Richmond	40	21	21.1	11.2
Salt Lake City	41	25	30.8	19.0
San Diego	43	35	39.9	32.8
Schenectady	25	8	26.5	8.6
Springfield, Mass.	17	11	11.8	7.7
Syracuse	29	16	15.7	8.7

(A) Total number of automobile fatalities for the 53 weeks endings January 2, 1926.
(B) Fatalities whese both accident and death occurred within city limits—January 1, 1925, to January 2, 1926.
(C) Total deathrate from automobile fatalities, per 100,000 estimated populaton.
(D) Rate where both accident and death occurred within city limits.

Following the City Plan in Appleton

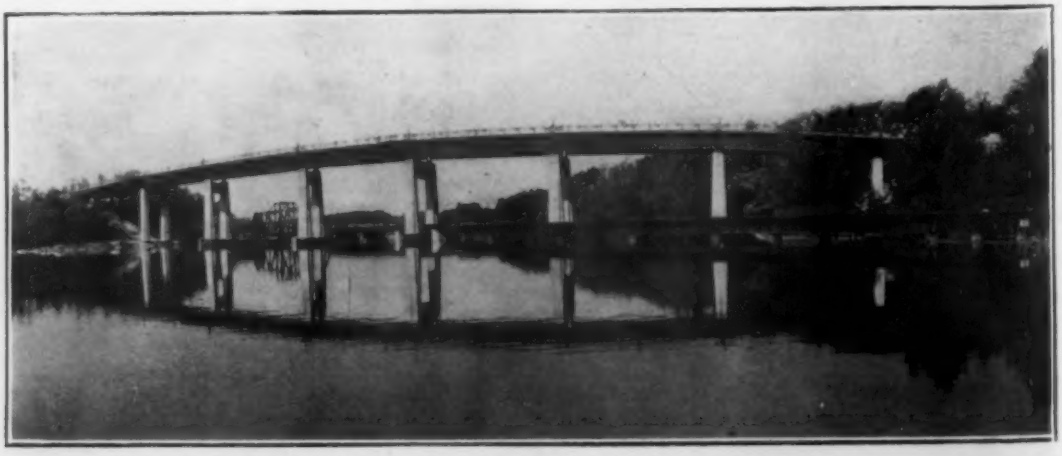
By Erik Madisen

WHEN the people of Appleton, Wis., a city of 23,000 population, adopted in 1922 the city plan prepared for them by Leonard S. Smith, city planning engineer, of Madison, Wis., it is doubtful if many of them would have believed that within three years' time so many of what then seemed visionary schemes would actually be put into effect. In handling its two outstanding problems—zoning, and traffic facilitation—and in various other undertakings, the city has already profited by the recommendations of the city plan.

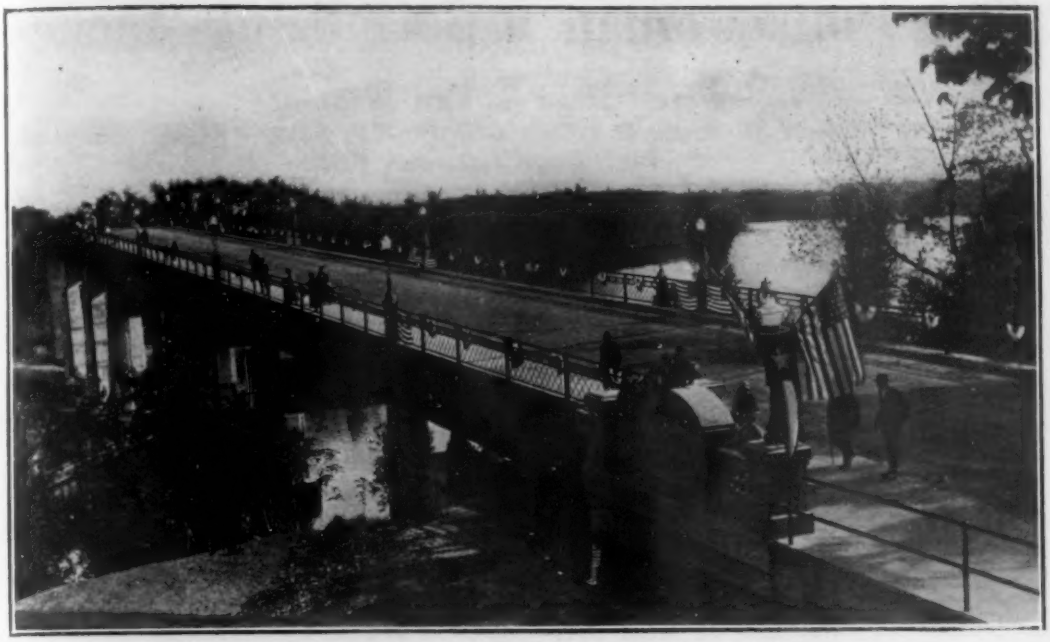
During the last few years new homes have been built in Appleton at the rate of between two and three hundred annually, and this fact, coupled with promiscuous commercial and industrial development, created an urgent need for zoning regulations. This condition was so evident that the mapping out of proposed commercial, industrial, and residential districts was made one of the major features of the plan. A strong public sentiment in favor of the adoption of zoning restrictions was aroused and the City Council was finally induced to pass a zoning ordinance, embodying in the main the proposals set forth in the plan. The ordinance has already been the means of keeping several factories out of residential districts, and has prevented the erection of garages, creameries, gasoline stations, etc., in restricted neighborhoods.

Streets clogged with traffic also caught the attention of the city planning engineer, and prompted him to undertake a detailed traffic census to bring out the basic facts of the situation. It was found that one narrow street on which trolley cars were operating carried a traffic of over 2,600 vehicles a day, and that at an intersection one block away from that thoroughfare over 3,800 vehicles passed a given point in less than twelve hours. The principal reasons for this condition were soon recognized. Appleton is situated on State Trunk Highway No. 15, a favorite route for tourists bound for the lakes and summer playgrounds of northern Wisconsin. There was but one bridge across the Fox River available for autoists following this highway, and to reach this bridge it was necessary to move through the heart of the city and along congested, narrow streets to the river. Adding to the difficulties of the situation was the fact that this route led the autoist over two dangerous hills, across the tracks of two steam railroads and one interurban line, and through a maze of tracks from a large railroad switchyard.

City officials and the Appleton Chamber of Commerce had for some time given this situation earnest study, and the need of additional bridges had been discussed repeatedly, with wide variance of opinion as to their location and the benefits to be derived therefrom. Based on the information gained from the traffic census, together with personal observations of conditions and a consideration of former proposals, the city planner strongly recommended the construction of a bridge at



SOLDIERS' AND SAILORS' MEMORIAL BRIDGE, APPLETON, WIS.
The upward bend towards the center makes it possible for all boats navigating the Fox River to pass below the bridge



ANOTHER VIEW OF APPLETON'S MEMORIAL BRIDGE

South Cherry Street. The long series of controversies on the subject were brought to a close when the bridge proposal outlined in the city plan was favorably voted upon in a public referendum, and was subsequently approved by the City Council. The bridge was built at a cost of about $275,000 and was dedicated in 1925 as a memorial to the soldiers and sailors of American wars.

Memorial Bridge spans the Fox River at a point where dangerous hills are avoided, and where there are no railroad tracks to be crossed. It brings traffic into the city at a point six blocks from the principal intersection of the down-town section and cars travel toward the center of the city over College Avenue, a thoroughfare 96 feet in width, instead of by the narrow streets formerly used. It is possible, also, to route the through tourist traffic directly across the city at the west end to convenient connecting points with state highways, completely avoiding the down-town area. With the completion in the near future of the paving of streets leading to the new bridge, Appleton's greatest problem will be virtually solved.

Appropriations for Parks and Garbage Disposal

The need for better recreational facilities was another important point brought out in the city plan. The 81 acres of park lands then owned by the city were shown to be totally inadequate, and the immediate purchase of available tracts was urged. Two of the sites suggested, one covering 45 acres and the other about 4 acres, both in sections previously void of park lands, were recently purchased by the city, and the Municipal Park Commission has engaged the services of a park planner to map out a definite program for the improvement of the new recreational areas.

Appleton's haphazard method of garbage disposal was also scored in the city plan, and the installation of a municipal collection system was urged as a necessary safeguard to the public health.. City officials and the Chamber of Commerce have since made a detailed study of this problem, with the result that an appropriation of $25,000 for a disposal plant and collection system has been included in the city budget for next year.

The platting of subdivisions must now meet the requirements of the City Planning Commission before being approved by the City Council; recommended street-widening projects are being definitely planned for; and a locality designated as needing street-car service now has a motor-bus line operating on a satisfactory schedule. In these and other phases of its development, Appleton is reaping the benefits of its foresightedness in adopting a city plan.

The Policewoman a Socializing Agency

By Mrs. Mina C. Van Winkle

President, International Association of Policewomen; Director, Woman's Bureau, Metropolitan Police Department, Washington. D. C.

MODERN police departments now have Women's Bureaus or are contemplating their establishment. They employ policewomen singly or in groups varying in number. Where Bureaus exist and function properly they are acting as a socializing agency to the whole police force, resulting in a better and more intelligent attitude on the part of policemen toward men, women, and children requiring their attention.

This social influence which penetrates the police service in general also affects the attitudes of judges and prosecutors trained in the individualistic, unsocial theory of a legal system which seldom takes into account the conservation and protection of social interests. Policewomen by use of the social method and modern clinical facilities for study and treatment of individual cases can suggest to the courts means for guidance and proper care of those who come to their attention. By insisting upon the social protection of women, children, and the community, rather than upon the vindication of "rights" which are presumed to inhere in the individual and the state, they are introducing into the administration of criminal justice a social view-point which should influence a change of attitude on the part of the courts and the public toward those accused of delinquency and crime.

It has been my privilege to visit most of the large and many of the small cities where women are employed in police departments in this and foreign countries. I have interviewed mayors, police commissioners, police chiefs, and hundreds of men in the ranks as to their views on the service of policewomen. Where good, qualified women are employed, no opposition to the service exists and there is endorsement of and pride in their work as well as enthusiasm in recommending the service to other communities. Opposition is unavoidable where women of easy, familiar habits find their way into departments, through political or other influence, and who, unable to do the work required, try to cover up their ignorance by maudlin sentimentality in dealing with persons coming under their control. Vulgar, uneducated, untrained policewomen degrade the service in the eyes of both the public and the policemen. . . .

Appointing Policewomen and Establishing the Service

Where there is progressive leadership it is a simple matter to secure the appointment of policewomen. In order to achieve this, no new machinery need be erected. Very little new equipment is essential; telephone, telegraph, stationery, record forms, and postage appropriation are all at hand. The employment of one or more policewomen in many cases entails no extra appropriation, because these cities have found it difficult to maintain a full corps of policemen and there are no obstacles in their law preventing the appointment of women to existing vacancies. Often the groups which make the demand for policewomen do not realize the necessity for selecting trained, educated women and of fixing standards for their functions, until they find that women incapable of worth-while service have been selected. It is the duty of both the police department and the public to see that policewomen are well trained and educated and, especially where they are to serve singly or in small groups, that they are thoroughly experienced in social service. They should realize, too, while the personnel of Bureaus in urban centers may have various kinds of training, the administrators must be women of broad education and experience in social work. When trained women are not available, the department must select good, well-educated women and provide them with training in social work and police procedure which will give them a background for their important duties. Such training could be given either in schools organized for this purpose in the police departments or in universities having facilities for giving courses for policewomen.

Preventive-Protective Work

The same ideals underlie the establishment of the service of policewomen everywhere. How strongly this standard affects the proper functioning of policewomen is evidenced by the successes and failures in the work. Where women of the right type have been employed, the ideal of preventive-protec-

tive work by the police has prevailed. Their functions both here and abroad have, in general, been similar. In cold print the difference in policewomen's standards and functions seem more strongly emphasized and greater than they are in practice. Having seen numerous policewomen at work in their own communities, I am convinced that the work is more alike than it is different. Everywhere, excepting in those cities where women have been denied the power of arrest or where police officials under orders from others deliberately obstruct the service of women by diverting it from proper channels and fixing handicaps that cannot be overcome by subordinates, I find policewomen are doing preventive-protective work, whether prescribed for them or not. Their attitude results from necessity in their day's work.

Observation of the work of London policewomen indicates that they serve as do good policewomen in the United States. On paper you find rules and regulations and, in personal contact with superiors, instructions that seem to be in conflict with their practice. In England there is an unwritten law in police departments which is perhaps the strongest tradition in their police work, namely, to do everything possible in order to prevent the necessity of arrest; yet they do not acknowledge as "preventive work" their service of warning and their provisions for proper attention to and care of persons not chargeable with breaking the law. We possess sufficient proof that preventive-protective work as a natural outgrowth of community needs is carried on in degrees of effectiveness according to the ability and worth-whileness of the policewomen. . . .

The almost impassable gap which past prejudices have permitted to exist between the work of the police and all other preventive agencies must be bridged, if we sincerely desire in the future to make headway in the struggle against delinquency and crime. The trained policewoman is furnishing this connecting link. Through her speaking, as she does, both the social worker's language and that of the police, we can join the forces of the community and create through mutual understanding that close cooperation so necessary to the preservation of the social body. In this service the police, to quote Commissioner Enright, of New York, are "the first line of defense." Of all the agencies interested, they have the freest contacts with and easiest access to the people in the neighborhoods to which they are detailed, while this new inclination on their part towards social, preventive practice corresponds to that of the schools as expressed by the work of the "visiting teacher."

ACKNOWLEDGMENT.—Excerpts from the introduction to "Women Police," by Chloe Owings, published by Frederick H. Hitchcock, New York, for the Bureau of Social Hygiene. See page 221, this issue.

Adoption of Administration Center Plan by Los Angeles County

THE culmination of nearly two years of the most intensive work and study on the part of the Allied Architects Association of Los Angeles and of officials of the County Government was reached early in November when the Board of Supervisors of the county officially adopted in principle the comprehensive plans prepared by the Association for a great administration and cultural center.* It will be a center, when completed, such as few cities in the United States or abroad will possess, for through the unanimous action of the county board, a plan is authorized which calls for the razing of more than fifty square blocks of buildings in the very heart of the city, to make way for the numerous great public and semi-public buildings which the county government, the city, state, and federal governments, will need in the years to come.

Fortunately for Los Angeles, the cost of taking over and improving this great area is not prohibitive; in fact, in proportion to the benefits received, the cost will be comparatively small, for the area involved now comprises a semi-slum district, poorly improved with apartment and tenement houses of the cheaper class, and second-rate business houses.

Nearly a year of the most painstaking research and study was put into the preparation of this plan by the Allied Architects Association, which developed the plan as a contribution to the welfare of the community. For this work the Association received only a nominal remuneration of $1. In the execution of the plan, the designing of the buildings which will be erected in the center, and the landscaping, the Association will stand in exactly the same relative position as any architect or firm of architects in the matter of obtaining commissions. The acceptance of the plan by the county in no wise binds the county to employ the Association for further development work. The Association numbers among its membership seventy practicing architects of southern California, who are united in the common aim of giving the various governments the best in art and architecture at a minimum of cost.

* See THE AMERICAN CITY for May, 1925, page 573.

Chamber of Commerce Activities in Public Affairs

Signs at Every Corner—Visible, Conspicuous, Uniform and Durable

BOSTON, MASS.—A "signless city" is an abomination to its citizens and particularly to its visitors. Especially in a city like Boston, where the street layout is irregular and confusing, an adequate system of streets signs is essential.

In Boston, the Engineer of the Highway Division of the Public Works Department has been in charge of the erection of street signs. Signs were erected when called for by reports from the district foreman. The policy as to type, poles, location, etc., was very indefinite. In recent years wooden signs with gold lettering on a black background prevailed, especially after the experimental vertical sign of aluminum letters on a black background had proved unsatisfactory. Where the square electric light poles were available, the wooden box type sign was used. On the new "white way" poles, the vertical aluminum type was used. At most crossings wooden signs were affixed to the walls of buildings at varying heights and often at a considerable distance from the corner. These signs were neither durable nor clearly visible. Worn-out signs were left in their obscurity and new signs seldom were erected to replace those destroyed when poles were removed or building torn down.

The Boston Chamber of Commerce interested itself in the matter over a year ago but did not undertake an intensive campaign until the summer and fall of 1925. In August the personnel of the Civic Bureau made a careful survey of conditions in a large section of the city. Every street intersection in this district was covered to learn whether it had signs naming each street and to observe the condition and type of the existing signs. It was found that 205 street signs were missing and that 40 existing signs were too old or obscure to be useful. The most important highways were in many instances most poorly equipped, a condition largely due, no doubt, to the tacit assumption that those streets are too well known to need designation.

A report of the results of the survey was sent by the Chamber, through its Committee on Municipal and Metropolitan Affairs, to Mayor Curley, who subsequently called a conference of department heads to discuss the situation and to make plans for improvements. Wide-spread publicity through *Current Affairs* and the daily press had stirred up much interest and had brought forth some valuable comments.

Meanwhile, the Chamber's Committee on Municipal and Metropolitan Affairs, through a subcommittee, studied the problem, following a conservative course and seeking a practicable solution. The conclusions reached by the committee were the basis of the report calling for a definite, thorough program of street signs.

"The city should adopt a program of placing durable, plainly legible signs in conspicuous places at each street intersection, indicating the name of *each* street. These signs should be readable from every approach.

"If the resources of the Department of Public Works are not sufficient to complete the work in one year, a two- or three-year program should be undertaken at once, and adequate appropriations should be made in each year, beginning with the budget for 1926.

"A more definite and uniform policy as to type, material, color, location, height, etc., of signs should be developed and adhered to as closely as possible in carrying out the program recommended above."

The Chamber argued against the use of vertical signs and urged the exclusive use of poles rather than buildings for sign locations. For economy of space and expense it urged the use of existing poles of public service corporations, and of the Police Department, wherever possible.

At the Mayor's request, the City Planning Board studied the question very carefully and recently made its report. Its recommendations embody the suggestions of the Committee on Municipal and Metropolitan Affairs:

1. A four-year program for putting up an entirely new type of street signs, at an expenditure

What Do You Think of This Scheme for Street Signs?

THE Chamber's Committee has received a suggestion from George H. McCaffrey that it consider a combination of the type of sign used in New York with those used in some European cities.

His plan is that under the street name be placed the name of the intersecting street and also the street numbers that occur between that intersection and the next.

Thus at the corner of Tremont and Boylston Streets, the sign on Tremont Street would read:

TREMONT STREET
at Boylston
188 to 232

the numbers being from that intersection to the intersection of Tremont and Stuart Streets. Another sign at the other corner would convey similar information, but with the odd numbers.

Do you believe that this scheme would work in Boston? The committee would welcome your comments on this scheme or any suggestions of other schemes which you may have.

The Boston Chamber of Commerce interested its members in its street sign campaign through "boxes" such as this in various issues of its bulletin, "Current Affairs"

THE AIM

It is the aim of the Committee on Municipal and Metropolitan Affairs to do what it can to make sure that Boston has

Adequate Streets
well marked
well numbered
well paved
well maintained
well cleaned
well used

To accomplish these ends the committee intends to cooperate with the officials of the city and it seeks suggestions from and the assistance of all members of the Chamber.

ANOTHER "BOX" FROM "CURRENT AFFAIRS"

of $25,000 per year.

2. These signs would be enamel, with white on blue background.

3. No more vertical and box-type signs would be erected and the obsolete practice of giving ward designations would be abolished.

4. All new signs would be upon posts and not on buildings. Existing posts would be utilized wherever possible.

5. Signs would be installed wherever they are lacking, in the central district first, then in subcenters, on main thoroughfares, and lastly on minor streets.

6. One hundred directional signs would be located at important points of entry to the city.

The City Planning Board is carefully considering the possibility of having these signs made at the Charlestown Prison, where the motor registration plates are made. Whether these recommendations will be followed in the adoption of a definite program of street signs at every section will be decided by the present administration under Mayor Malcolm Nichols. From every present indication Mayor Nichols intends to carry on the good work already begun. It is hoped that by the summer of 1926 the tourist who visits Boston will find an appreciable progress towards the adequate signing of the narrow and crooked streets of Boston.

BERNARD WIESMAN,
Civic Bureau, Boston Chamber of Commerce.

Business Men Back Community Symphony Orchestra

OKLAHOMA CITY, OKLA.—The symphony orchestra of Oklahoma City, in the development of which the local Chamber of Commerce has taken a leading part, has become one of the most popular organizations in the community and has attracted considerable attention in this part of the country.

The nucleus of the present orchestra was a string choir of eighteen pieces organized in the Oklahoma City Ladies' Music Club in the spring of 1921. This voluntary group of players engaged Frederik Holmberg, Dean of Music at the University of Oklahoma, the present leader of the symphony orchestra, as their director. In two seasons the membership of this string choir increased to thirty-five, and by the spring of 1923 community interest in the work of the group had strengthened sufficiently to warrant plans for a complete orchestra. A guarantee fund of $10,000 was raised among the business men of the city with very little effort, and about fifty local players, including some from the University, joined the orchestra. A few professional musicians were added to the membership, their services being paid for at rates ranging from $1.50 for rehearsals to $7 for concert performances.

During the first year seven concerts were given, one each month of the season. Season tickets were sold at $7 and $5 each, and tickets for single performances were sold at from 25 cents to $1.50 each. In 1925 the guarantors were signed up for three years for the increased sum of $20,000 per annum, and an advertising and general manager was employed to handle all business details and to promote the sale of tickets. The fact that we are able to secure the services of our Director at a very modest figure, because of his location at the University not far from the city, is one of the principal reasons for this city's being able to finance an orchestra with so small a fund.

The number of players has now reached fifty-

TWO BOSTON CORNERS—PUZZLE: FIND THE STREET SIGNS ON THE BUILDINGS

eight, and the symphony orchestra is growing in popularity as a community enterprise.

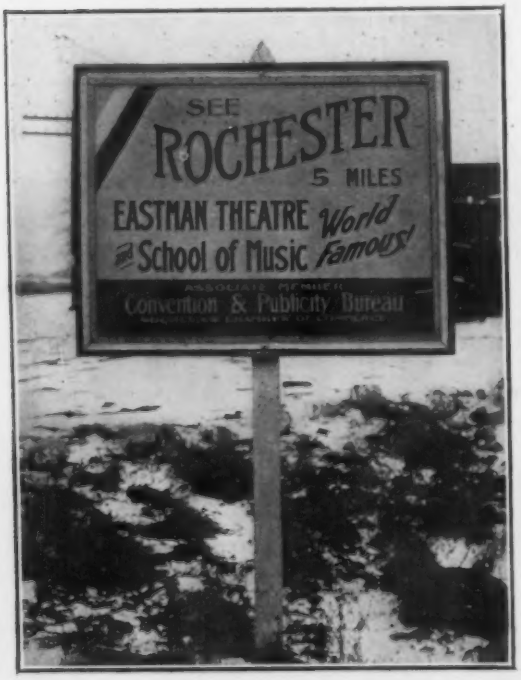
STANLEY C. DRAPER,
Assistant Manager, Oklahoma City Chamber of Commerce.

Chamber's Road Signs Invite Tourists to Rochester

ROCHESTER, N. Y.—Tourists traveling along any of the main highways leading into this city from all directions are informed at frequent intervals, through signs similar to the one reproduced herewith, of the distance from those particular points to the city of Rochester, and at the same time are invited to visit this community and to take advantage of the various attractions of interest to tourists that it has to offer. Through the erection of 175 of these signs calling attention to many of Rochester's civic assets, including its 1,774 acres of parks, its golf courses, swimming facilities, hotel accommodations, etc., the Tourist Committee of the Convention and Publicity Bureau of the local Chamber of Commerce has rendered a valuable service to the city as well as to the traveling public.

When making plans for carrying out this road-sign project, the Committee hit upon the rather unique scheme of seeking the cooperation of the owners of gasoline service stations and lunch rooms along the routes, with the thought that signs located at these stations which are so frequently looked upon as bureaus of information would most effectively serve their purpose. All the proprietors at whose places signs have been erected have become associate members of the Convention and Publicity Bureau.

The lettering of the signs is in blue and gold, the Rochester colors, and the general appearance of the signs is thought to be exceptionally attractive.



ONE OF 175 ROAD SIGNS ERECTED BY THE ROCHESTER CHAMBER OF COMMERCE

P. B. VAN DEUSEN,
Manager, Convention and Publicity Bureau, Rochester Chamber of Commerce.

Chamber Provides Public Parking Ground

PERKASIE, PA.—Through having leased a plot of land adjoining the business section for use as a free public parking ground, the local Chamber of Commerce is helping to solve one of the traffic problems of the community. The use of this land, which has a frontage of almost one block and a depth of 50 feet, has been secured for a nominal rental, and the Borough Council has agreed to take care of whatever grading is necessary and to furnish electric current for lighting purposes free of charge.

The supervision of the parking ground, in so far as the observance of law and order is concerned, is in the hands of the Police Department. No other management has been deemed necessary up to the present time.

MARK THATCHER,
Secretary, Chamber of Commerce.

Chamber's Committee Investigates City Auditorium Question

SPOKANE, WASH.—A particularly important service to the city of Spokane is being rendered by the local Chamber of Commerce through its investigation of the feasibility of a municipal auditorium for this city. A City Auditorium Committee of 105 members, with an executive committee and four subcommittees on legislation; use and occupancy; cost, capacity and architecture; and financing, was appointed by the Chamber in the latter part of 1925 to make a thorough study of this question.

For the benefit of the individual members of the Committee, a digest of data on city auditoriums gathered from 48 cities has been published in the form of a mimeographed report. Additional information is now being sought from those cities on the methods employed by each in the selection of architects for their auditoriums, and when complete this also will be compiled and published.

Through the efforts of the Committee, the State Legislature, at the session recently closed, amended the state law to permit all cities of the first class (cities having a population of 20,000 or more) to build and operate municipal auditoriums. The original law permitted only cities having a population of 300,000 or more to undertake such enterprises.

The question of an auditorium for Spokane will be put before the voters at a special election on March 9 this year, and the campaign will be based on the recommendations to the City Commissioners now being prepared by the Chamber's Committee.

H. E. CASSILL,
Secretary, City Auditorium Committee.

To Stimulate Love and Service for the City

That American cities are failing to profit as they might by gifts of time and money from their able and wealthy citizens is emphasized in an article on

"The Love of the City," by John J. Fitzgerald, Secretary of the Chamber of Commerce of Paterson, N. J. As one constructive remedy for this condition, Mr. Fitzgerald suggests increased attention by the community to the discovery and training of the more able among the young people, who, because the city has thus helped them, will return that help a hundredfold later.

To quote in part:

"If chambers of commerce in their quest for a doing and thinking community citizenship could adopt as a national program the policy to have at least one-half dozen boys and girls chosen for higher education from every local high school each year by local boards of education, we should start on a program of the state choosing its efficient men.

"Local philanthropists could help such a program if the local boards were tardy. It is true that many free scholarships are now in existence which apparently help towards this end. But the policy aimed at is a national one with the definite object of establishing the fundamental fact that the democracy has the courage to see and say that there are grades to mental capacity and *doing* efficiency. Will a democracy ever admit this?

"Sending a half-dozen boys and girls a year to the technical, scientific, art, and cultural schools would cost each high-school district but several thousand dollars a year. Men searching for some plan of endowment could help these cities by doing this. However, the point is to adopt a national policy whereby the democracy can choose its efficient men. Democracy must be taught how to choose and recognize efficiency, to set up its own standards, or we wallow in the chaos of the deadly average as some peoples are wallowing to-day.

"As organizations of efficient professional, commercial, and industrial men, chambers of commerce are facing the inquiry as to what they are doing. Here is one thing they might endeaver to do—lead efficient men into service for the community and lead the community into the selection of efficient men for service."

Synchronized Traffic Signaling Systems

A Letter and the Editor's Comment

To the Editor of THE AMERICAN CITY:

THE movement throughout the country toward the adoption of automatic and manually operated signals at street intersections calls for a more careful analysis than is ordinarily made of the local problems to be solved.

Traffic engineering now has at its command data which ought to make possible the substitution of science for guesswork under all ordinary conditions; but frequently the method of "trial and error" is still used, as in the experimental installation which Cleveland has been trying in recent months.

This installation comprises a central control tower located at Ninth Street and Euclid Avenue and a series of overhead lights, eight in number, spaced about two blocks apart.

The permanent installation of any signaling system for traffic control is not justified unless it accomplishes one or more of the following purposes:

1. Increasing the factor of safety to life and limb
2. Handling the traffic at reduced expense to the public
3. Reducing the time of movement of the traffic in the area served

It is thought to be conceded to-day that the synchronized signals do not expedite traffic. This is certainly the fact in Cleveland, and it is logical to conclude from practical observation elsewhere that the system involves a loss of time not only to the motorist, but also to the pedestrian—if the latter obeys the signals.

Careful observation of the system as placed in operation in Cleveland will lead to interesting conclusions. The conditions of Euclid Avenue traffic are very peculiar and must be considered in arriving at fair conclusions as to the benefit of any type of signaling system which may be installed there.

In the first place, Euclid Avenue carries a very heavy street-car traffic on centrally arranged tracks, in addition to the traffic of the new street-railway motor-busses, and that of motor vehicles, which is exceptionally heavy on this street also. Moreover, at only two places, namely, at Ninth, where the central tower is located, and at Eighteenth Street, are the cross-streets through intersecting streets. All of the other six or seven streets which enter Euclid Avenue in the zone served by the signal system are dead-ended at Euclid. These dead-ended streets are short streets carrying a very small volume of motor vehicle traffic, whereas the streets called Ninth and Eighteenth are long through-streets carrying a very considerable volume of traffic. Thus the problem is to coordinate the small volume of traffic with those on Ninth and Eighteenth, and also coordinate the movements of three totally different classes of vehicles.

What are the actual results of the installation in Cleveland? The Street Railway Commissioner reported early after the commencement of the system that the installation of the system on Euclid Avenue and on a couple of other streets would involve increased costs of approximately $30,000 for street-railway operation due to slowing of the movement of the cars.

As to expense of operation, the original expectation was that after the people got used to the system in Cleveland, the policemen stationed at each of the signalized traffic corners would be taken off and a saving of $2,000 to $2,500 for each policeman effected. The real accomplishment in this connection has been to move the policemen from the center of the streets, except at Ninth, where five policemen are used, and these policemen now simply watch the signals and watch the pedestrians. It is recognized quite fully in Cleveland, that if the traffic policemen are taken away, practically no one will obey the signals.

Now, as to the prevention of accidents, as a matter of logic, it is clear that the factor of safety

is decreased by the signal system. The reason for this is that the dead-ended streets in Cleveland require motor vehicles on these streets to turn to the left or to the right when reaching Euclid. But it must be recalled that when the "Go" signal is set for the flow of the motor vehicle traffic, the same signal advises the pedestrian to "Go" as well. This means that motorists making the turn must cross the path of flow of pedestrian traffic. The utter absurdity of assuming an increase of the safety factor in the movement of th pedestrian, by a system operating like the one described, where there are dead-ended streets, is self-evident.

No practical theories of good engineering dictated the installation of the system in the beginning, and the results of its use prove an entire loss of the advantages of individual traffic officer control, which in the aggregate represented an enormous improvement over the present conditions.

It is suggested that, to save what little may be saved from the expense incurred, requires a breaking up of the system into signals individually controlled by the traffic officers now employed, whereupon the traffic will flow more quickly, as previous to the installation, and the people will look to the traffic officer for direction of movement and safety not now obtained. Also, if the system is to be continued, it should be flexible to the extent of discontinuing its operation during non-rush hours in cities like Cleveland, which has little traffic density save during "peak load" hours.

Before adopting the synchronized system, cities should seek engineering counsel, instead of employing mere layman judgment, as is now the customary method. Moreover, all traffic problems should be handled as engineering ones, primarily, and not consigned to the skill of the usual politically appointed traffic officers having little qualification to deal with matters of this sort. This letter is written so that the taypayers in large cities may not be led to assume that the thing called by the fancy name of "synchronized signal system" is really adapted for application to traffic conditions in all cities, irrespective of special conditions.

JOHN F. ROBB.

Editorial Note.—The foregoing letter from a Cleveland attorney is published, not as an expression of THE AMERICAN CITY's point of view, but as emphasizing the importance of adequate study of the new science of street signaling, in its application to local problems, before expensive installations of mechanical signaling systems are made. In the case of Cleveland, we are informed that this very thing is being done, and that the installation criticized by Mr. Robb is strictly a trial one, loaned for the purpose by a leading manufacturer of signaling systems, and that its operation under various conditions of traffic is being carefully studied as preliminary to the adoption of a system of traffic control for the entire down-town business section of the city.

One of the most difficult problems of the traffic engineer is to adjust the conflicting demands of the three factors listed by Mr. Robb—safety, economy, and speed—in traffic control. But there will be general agreement, we believe, that safety to life and limb is of such paramount importance as to justify the use of synchronized or other mechanical devices, if they increase the safety factor, even though local conditions are such that no traffic device could favorably affect the other two factors.

As to the time element, it is hoped by traffic officials in both Chicago and Detroit that the extensive installations of mechanically controlled signaling devices planned for these cities will demonstrate the practicability of a platoon system by which traffic will be expedited and safety promoted at the same time. But neither of these cities, nor any other, can hope by mechanical means to dispense with traffic officers at important street intersections. With haste and carelessness so common among pedestrians and motorists, the human factor must continue to be the most important one in efficient traffic control. For this very reason the traffic officer should be as free as possible from the necessity of serving merely as a signaling mechanism. He can do his job much better if his hands and whistle are aided by mechanical devices, installed under the advice of competent traffic engineers—devices which will continue to function while the traffic officer is giving aid or administering reproof to those needing it.

THE AMERICAN CITY will welcome comments from traffic authorities on the points raised in Mr. Robb's letter.

Supreme Court Rules on Special Assessment for Road Improvements

THAT property owners have no constitutional rights to be heard on the question of benefits assessed against them for road improvements where the burden is spread by the legislature or by a municipality to which the state has granted full legislative powers over the subject, was affirmed by the United States Supreme Court in a decision handed down on January 4, 1926. The Court, however, declared unconstitutional the Texas Road Improvement Law as denying the benefits of the "due process" clause of the Fourteenth Amendment to the Federal Constitution.

Residents of Archer County, Texas, had applied for an injunction against the issuance of $300,000 worth of road bonds, claiming that the road districts as mapped out had no standing in law. In upholding their contention, the Court's opinion, read by Associated Justice Butler, said:

"It is essential to due process of law that such owners be given notice and opportunity to be heard on the question, where, as here, the district was not created by the Legislature and there has been no legislative determination that their property will be benefited by the local improvement. Appellants were denied all opportunity to be heard. No officer or tribunal was empowered by the law of the state to hear them or to consider and determine whether the road improvement would benefit their lands. The act is repugnant to the 'due process' clause of the Fourteenth Amendment."

Discovering Home Supplies and Home Markets

By Caroline B. Sherman

Associate Economic Analyst, U. S. Department of Agriculture

FEW cities realize how much their food-supply conditions have been affected during the past two or three years by the changes that have been felt so keenly on the farms. High costs of production, high freight rates, departures from the farm to seek other lines of work, all have their effect, sooner or later, on the problems of the city's food supply. That these problems cannot be solved without close consideration of the farming conditions in the territory surrounding the city is coming to be clearly recognized.

These changes have seemed to make it desirable to practice a policy of developing a home market on the part of farmers and of patronizing home supplies on the part of a city population, instead of relying chiefly on distant markets as has been the tendency during the past decade. So urgent has some form of this shift seemed that the Department of Agriculture has aided several selected cities, within the past two years, to take stock of their neighboring possibilities in the way of a food supply, and to work out a program looking to a closer interrelation between the food trade of the city and the planting and marketing in its surrounding territory. To do this, there must be close knowledge of the consumers' requirements in a given city, for these are the requirements which constitute the market demands of the city. State and local cooperation has been most hearty in this work. Sometimes the state has asked for the service, sometimes the city has asked for it, and sometimes the farmers and business men have combined in the request.

These studies aim to determine the amounts, kinds, and qualities of different foodstuffs consumed in the selected city, the places where these foods are produced, whether near or far, the farm production in the surrounding area, the part of this farm production that is consumed in this area and its city, and the part shipped to distant markets. Potentialities are also studied, such as the possibility of increased profits to the farmers or lower costs of food to consumers through increased production for the use of the local market. Any other changes in production and marketing practices that would result in local benefit and profit are considered.

Altoona, Pa., was one of the first cities studied, together with its surrounding producing area. The announcement of the project aroused the interest of local business men in all lines of industry, and the local farmers recognized the advantage to them of knowing exactly the present needs and the probable future needs of a market right at their doors. The extent to which Blair County farmers are meeting the demands of Altoona for agricultural products was determined through a food consumption survey of the city with special reference to quantity, sources, manner of marketing, and methods of transportation.

Food consumption, sources, and distribution in Charleston, W. Va., were studied exhaustively in connection with production and marketing methods in its surrounding territory. It was found that the existence of freight rates established many years ago, before agricultural production in the locality had assumed car-lot proportions, and the development of a hard-surfaced road system that makes the mining towns of the region more accessible to the adjacent country, were only two among many of the conditions that make a readjustment necessary. Says the concluding report:

"The lack of a public market in Charleston

Cooperation Available from United States Department of Agriculture

The close relationship between the prosperity and welfare of a city and of its surrounding area is strongly emphasized by studies such as this article describes. These surveys also aid the cities and their localities to know themselves and their own advantages, defects, and possibilities, as they have never known them before.

Chambers of commerce or other civic bodies which are desirous of encouraging home markets for near-by farmers and of lessening the dependence of their cities on distant markets can obtain valuable cooperation from the Bureau of Agricultural Economics of the United States Department of Agriculture.

has not been felt in the past because the volume of locally produced perishables has been comparatively small and the farmer has had little difficulty in disposing of his marketable surplus by peddling it to the retail trade or to the housewives in the residential districts of the city. This condition, however, will not last much longer, because a large number of the local farmers are beginning to raise truck and produce on a commercial scale. . . . As the state highway system nears completion, the volume of fruit and vegetables placed on the Charleston market will increase and the need of markets will be more serious. By encouraging the local producers to market in Charleston, the consumers in the city will obtain access to a fresher, more wholesome supply of fruits and vegetables, and some of the returns from the sale of the produce will naturally be spent with the local merchants. Thus the whole community will share in the benefits.

"With the establishment of proper marketing facilities in the city, Charleston should become the wholesale market for perishables produced all over its area. Some of the farmers would truck their produce in over the highways and dispose of it in wholesale quantities during the early morning hours. Their products would then be marketed over the city and in the adjacent mining towns through the established channels of distribution. Others would remain on the market and sell direct to consumers."

It is planned to continue these studies of the main consuming trade areas of West Virginia until all have been studied, according to one of the state officials. Out of them it is believed will grow not only more confidence, and therefore better farming, in the rural communities, but a better-stabilized market in the consuming centers, which, in the long run, will benefit merchants and consumers.

Conditions Which Vary with Each City

The kind, quantity, and quality of food products consumed by a city depend largely upon the nature and character of the people, the countries from which they come, the kind and stability of their employment, and the amount of their income. These conditions vary with each city and must be studied in each case before an intelligent analysis can be made as to the future possibilities of such a market. Accordingly, such studies have been conducted cooperatively together with a survey of the surrounding trade area in Macon, Ga., Richmond, Ind., Atlantic City, N. J., Fayetteville, N. C., Lebanon, Pa., and Roanoke, Va. Brief preliminary surveys have been made at Charlotte N. C., Danville, Va., and Terre Haute, Ind. In several instances, interest centers more particularly around the city market, and requests for help came first in the form of requests for assistance in establishing or rejuvenating the market. The cities usually welcome the idea of making the study a broader one, including the sources of present and future supply for the market. In most of these cases full reports of the study have been published either in printed or mimeographed form, thus making them available not only for local but for general use.

Atlantic City is the only example studied thus far that has the problem of a greatly fluctuating population with resulting fluctuation of food demands. Atlantic City has a surprising number of city markets, yet many of the hotels and wholesale dealers receive their supplies of fresh fruit and vegetables from the Philadelphia markets, where some of the large hotels maintain their own buyers to select exactly what they need. The demands of the hotels as to both quantity and quality are very different from the demands of the householders. The investigators recommended, among other things, that local farmers grow fewer varieties of products and work toward improving their quality. They were also advised to study the needs of the class of consumers they hoped to supply, to grow just the things wanted by them, and to prepare the products in the way those consumers prefer.

New Orleans is staging the most ambitious study of this character yet undertaken. Production, marketing, and consumption of farm products in Louisiana and southern Mississippi are being surveyed by the Department of Agriculture in cooperation with the Louisiana State University, the Mississippi Agricultural and Mechanical College, the New Orleans Association of Commerce, and other public agencies, to furnish an economic basis for future programs.

The work includes a study of city marketing and consumption, general farm organization and management, farm home improvement, farm finance and credit, and tenancy. Committees composed of representatives of each of the cooperating agencies have been organized for each commodity or situation to be studied.

A detailed survey of the consumption of farm products in New Orleans and within the state as a whole is being made to determine how local producers are meeting present consumption requirements, and studies will be made of markets outside the area to which surplus products are shipped. The famous old French Market is receiving especial attention. Its patrons are canvassed to determine where they come from, how they reach the market, the time consumed, the value of the loads brought to market, the kind of products, and the problems to be overcome to make the business profitable and satisfactory.

The Police Power, Public Health, and Due Process of Law

By James A. Tobey, M. S., LL. B.

Nature of the Police Power

THE police power is the power inherent in a government to enact laws, within constitutional limitations, to promote the health, safety, morals, order, comfort, and general welfare of society. Freund says that it means the power of promoting the public welfare by restraining and regulating the use of liberty and property. One of the classic definitions is that of Chief Justice Shaw of Massachusetts, who wrote:

"We think it is a settled principle, growing out of the nature of well-ordered civil society, that every owner of property, however absolute and unqualified may be his title, holds it under the implied liability that his use of it shall not be injurious to the general enjoyment of others having an equal right to the enjoyment of their property, nor injurious to the rights of the community. All property in this Commonwealth is . . . . held subject to those general regulations which are necessary to the common good and general welfare. Rights of property, like all other social and conventional rights, are subject to such reasonable limitations in their enjoyment as shall prevent them from being injurious, and such reasonable restraints and regulations established by law as the Legislature, under the governing and controlling power vested in them by the Constitution, may think necessary and expedient. This is very different from the right of eminent domain—the right of a government to take and appropriate private property whenever the public exigency requires it, which can be done only on condition of providing a reasonable compensation therefor. The power we allude to is rather the police power; the power vested in the Legislature by the Constitution to make, ordain, and establish all manner of wholesome and reasonable laws, statutes, and ordinances, either with penalties, or without, not repugnant to the Constitution, as they shall judge to be for the good and welfare of the Commonwealth, and of the subjects of the same. It is much easier to perceive and realize the existence and the sources of this power than to mark its boundaries, and prescribe the limits to its exercise."

An Inherent Right of Government

"Salus populi suprema lex," or "The safety of the people is the supreme law," is an ancient Roman maxim. The power to protect the health and welfare of the people has always been considered an inherent right and duty of any sovereignty. From time immemorial, health has been recognized by government as the thing without which life is not worth living; accordingly, the state has taken such measures as seemed wise to maintain and preserve the health of those subject to its authority.

Before the Constitution of the United States was adopted, the states possessed the power of health protection, and this was one matter which was not granted to the Federal Government. Furthermore, the Tenth Amendment to the Constitution specifically states that "the powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people." This clause includes all those matters which come under what is known as the "police power."

The police power is therefore founded on the maxim, "Sic utere tuo ut alienum non laedas," which means, "So use your own as not to do harm to others." Or, to put it another way, "The greatest good of the greatest number." The earliest case in which this doctrine is upheld is said to be that of Coates v. Mayor and Alderman of New York City, decided in 1827. The sexton of Trinity Church buried a body in Trinity Churchyard in violation of a city ordinance, and the city sought to have imposed on him a fine of $250. The defense was that Trinity Church had a property right to inter bodies in the churchyard and that this amounted to a contract. The Federal Constitution forbids any state to impair the obligation of a contract. The Court denied this contention, however, and ruled that the ordinance in question, made pursuant to state authority for the preservation of health, was a policing regulation and not a law impairing the obligation of a contract. The Court declared that "every right, from an absolute ownership in property, down to a mere easement, is purchased and held subject to the restriction, that it shall be so exercised as not to injure others."

The police power is the broadest in scope of any field of governmental activity. All persons in a state, including corporations, which as individual entities are considered as persons for most legal purposes, hold their property and engage in business, and must regulate their

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conduct subject to the police power of the state. This power can not be divested by the state, nor by any inferior legislative body to which it may be delegated. That it is the right and duty of the state, under this police power, to enact laws for the preservation of the public health has been decided by innumerable courts. In fact, a leading encyclopedia of law lists over one hundred such cases.

Subjects Included

The courts have given numerous opinions regarding the subjects which may be included within the scope of the police power. The older cases have dealt with many phases of sanitation such as the regulation of nuisances, drainage requirements, prevention of pollution of water-supplies, regulation of waste disposal, and adulteration and sanitation of food and drugs. There are also many decisions concerning the control of communicable diseases, imposition of quarantine, vaccination, milk, prevention of prostitution, licensing and regulation of occupations, hours of labor, and various other matters pertaining to the public health.

Distinguished from Eminent Domain

Eminent domain is a term applied to the sovereign right of a state to take private property for a public purpose, whether the owner consents or not. Under this power of eminent domain the state must make adequate compensation for the property so taken. The police power is quite different, for under it restrictions may be placed on private property in the interests of the public health, safety, morals, or welfare, and no compensation need be paid. During a severe conflagration, houses in the path of the flames may be dynamited, or property which would spread disease may be destroyed, in both instances under authority of the police power. If property is wanted for a public water-works, sewage disposal plant, or other civic purpose which may incidentally or even directly affect the health of the people, it must, nevertheless, be taken only under the power of eminent domain, for such purpose is a corporate rather than a governmental one. An individual under the police power cannot be compelled to devote his property to any particular use, but he may be compelled to refrain from using it for a purpose detrimental to the public health. Thus, a nuisance may be abated under the police power, or pollution of streams may be prohibited, even though property rights are concerned. The theory is that the owner may suffer some individual loss, but is compensated by sharing in the general benefits to public health, and his injury is what is legally known as *daminum obsque injuria,* or damage without injury.

Distinguished from Taxing Power

The taxing power is used to raise revenue, whereas the police power, as so often stated, is employed only to promote the public welfare. In performance of the latter duty, licenses may be required and fees levied. Occupations may be taxed for restrictive purposes under the police power. The distinction is therefore one between regulation and revenue.

Limitations on the Police Power

Frequently an act done under the authority of the police power comes in conflict with a clause of the Constitution, especially with one of those which comprise the bill of rights of all citizens. Which prevails? As a general proposition, any reasonable act done under the scope of the police power will be upheld, other constitutional provisions to the contrary. A recent pronouncement on this subject by a leading authority is found in the speech of Secretary of State Charles E. Hughes in his presidential address before the meeting of the American Bar Association in London, July 21, 1924. He is quoted by the *New York Herald-Tribune* as follows:

"We have provided the constitutional guarantee that no one shall be deprived of life, liberty, or property without due process of law. But this did not confine practice to archaic forms or deny the opportunity of improvement. It did not refuse to legislatures the authority to enact reasonable measures to promote the safety, health, morals, and welfare of the people, or make rational experimentation impossible, but it was intended to preserve and enforce the primary and fundamental conceptions of justice which demand notice and opportunity to be heard before a competent tribunal in advance of condemnation and, with respect to every department of government, freedom from arbitrariness. The process of applying these formulas has proved to be an education in reasonableness after the essential method of the common law."

Due Process of Law

The Fourteenth Amendment to the Federal Constitution requires that no state shall deprive any person of life, liberty, or property without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws. Suppose that a health officer, acting in accordance with local ordinances, removes a patient with smallpox to an isolation hospital against the patient's will and also seizes the bed and bedding used by the patient and burns it. He has deprived the person of

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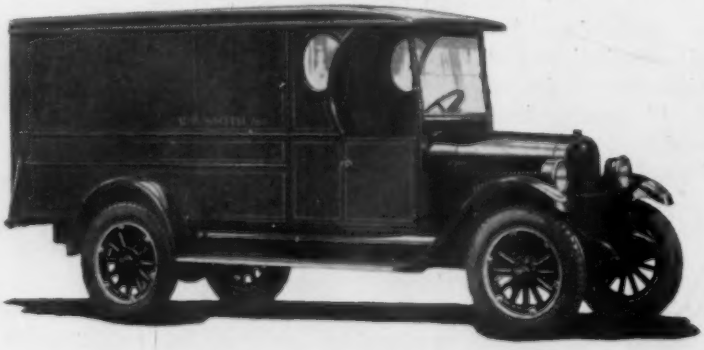

QUALITY AT LOW COST

liberty and property apparently without due process of law, if this phrase means that there must be an orderly procedure before a court of justice where the party may have an opportunity to be heard.

Such summary action would be upheld, as sanitarians know from actual experience. As a matter of fact, "due process of law" means more than a court proceeding. An excellent definition of its scope has been given by Pomeroy:

"Due process of law implies primarily that regular course of judicial proceeding to which our fathers were accustomed at the time the Constitution was framed; and, secondly, and in a subordinate degree, those more summary measures which are not strictly judicial, but which had long been known in the English law, and which were in familiar use when the Constitution was adopted. These summary measures generally, though not universally, form a part of that mass of regulations which many writers term Police, and which relate to the preservation of public quiet, good order, health, and the like . . . . The summary measures which may form a part of due process of law are those which have been admitted from the very necessities of the case, to protect society by abating nuisances, preserving health, warding off imminent danger, and the like, when the slower and more formal proceedings of the courts would be ineffectual."

The public welfare demands that the rights of the individual give way to those of the people as a whole. The United States Supreme Court has ruled that policing regulations which actually do deny some persons the equal protection of the laws are not void on account of the Fourteenth Amendment. The Court said, "Neither the [Fourteenth] amendment . . . . broad and comprehensive as it is . . . . nor any other amendment, was designed to interfere with the power of the state, sometimes termed its police power, to prescribe regulations to promote the peace, health, morals, education, and good order of the people . . ."

EDITORIAL NOTE.—The foregoing article comprises a portion of Chapter 3 of Mr. Tobey's new book, "Public Health Law—A Manual of Law, for Sanitarians," published and copyrighted 1926 by the Williams & Wilkins Company, Baltimore, Md.

The Municipal Bond Market

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

THE past month was a quiet one in the municipal bond market. Offerings of new issues were few and in small volume in comparison with the month of December. Dealers' shelves were well stocked in anticipation of the January reinvestment demand, and a broad inquiry for high-grade issues during the first half of the month was easily taken care of without disturbance to price levels. As January brought forth a reduced number of high-grade new issues, competition for all bonds offered was keen, but at prices that permitted the reoffering of the bonds at prevailing prices. An example of the kind of bidding is shown in the city of St. Paul bond sale. On a $1,000,000 issue there was a difference of only $6 between the successful and the second bids.

IMPORTANT OFFERINGS OF THE MONTH

Amount	Municipality	Maturity	Rate %	Net Yield %
$ 500,000	Rhode Island.....	1925-75	4	3.94
5,650,000	Rochester, N. Y.....	1927-56	4¼	4.13
1,000,000	St. Paul, Minn.....	1927-56	4¼	4.22
1,283,746	Minneapolis, Minn....	1927-46	4½	4.30
1,250,000	Baltimore Co., Md...	1947-54	4½	4.31
540,000	Marin Co., Calif.....	1930-38	4½	4.39
857,000	Bayonne, N. J.....	1927-66	4½	4.42
2,500,000	U. S., San Juan, Porto Rico.....	1933-68	4½	4.44
400,000	Lexington, Ky.....	1931-56	4½	4.46
2,000,000	Knoxville, Tenn.....	1928-63	4½	4.62
4,000,000	Los Angeles Co., Calif., Los Angeles City and High Sch. Dists....	1926-64	5	4.69
1,840,000	Tampa, Fla.....	1928-75	4½ & 5	4.97
650,000	Gulfport, Miss.....	1926-35	5¼	5.19
458,000	Lakeland, Fla.....	1926-35	6	5.86
580,000	Nassau Co., Fla.....	1930-55	6	5.93

Denver Regulates Street Trades

DEFEATED in its first attempt, as we understand, by a legal technicality, the Council of the City and County of Denver, Colorado, has promptly enacted a second street trading ordinance. It provides:

(1) That every vendor of newspapers and periodicals shall have a license and badge, both issued by the Manager of Safety and Excise.

(2) That no female under 21 years of age, and no male under 12 years of age, shall sell newspapers or periodicals on the streets.

(3) That any license may be revoked for misconduct.

Denver shows wisdom in moving to regulate the sale of newspapers in spite of all attempts to prevent it. Selling newspapers is a business. It is well accepted not only that cities have power to regulate any business, but that the regulation of the sale of newspapers has become a social necessity.

The American Child would have been glad if the ordinance had gone further, particularly in making it sure that boys under 16 years of age should not carry on the business of selling newspapers on the streets at night, but, nevertheless, it congratulates Denver upon the excellent beginning made. It is to be hoped that no technical flaw may be unearthed to nullify this second ordinance.

—From the December, 1925, issue of *The American Child*, the monthly bulletin of the National Child Labor Committee.

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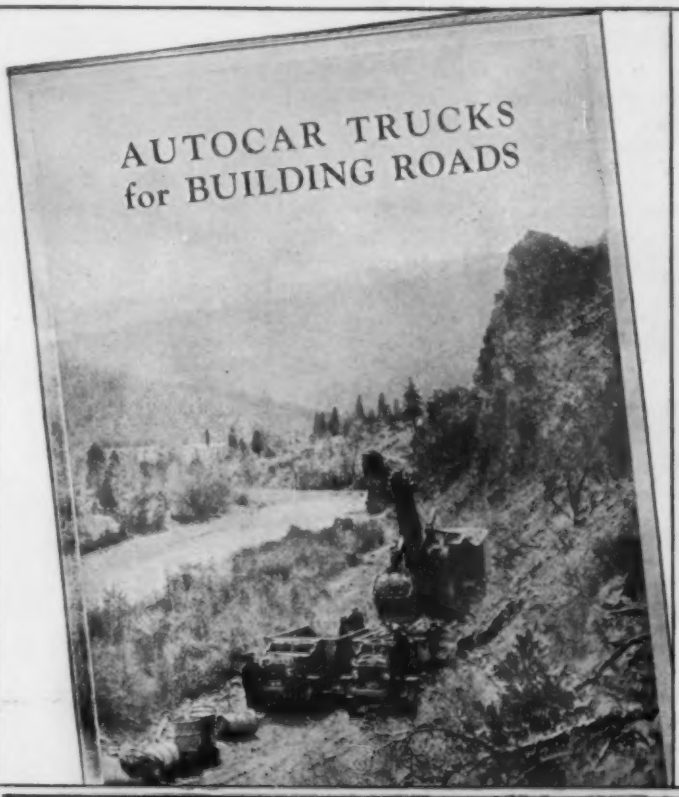

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The City's Legal Rights and Duties

Conducted by A. L. H. Street, Attorney at Law

Liability of City to Firemen for Injuries Caused by Defects in Streets

In a recent case involving the liability of a city for fatal injuries sustained by its fire chief through a defect in the street while he was driving to a fire, the West Virginia Supreme Court of Appeals recognized the right of members of a fire department to travel at a speed which would be negligent for one's own safety and the safety of others as to an ordinary traveler upon a city street. But the Court, following what courts in other states had decided, ruled that firemen must nevertheless exercise what constitutes reasonable care, considering the nature of their duties. (Waddell vs. City of Williamson, 127 Southeastern Reporter, 396.) The Court quotes the following observation made by the Minnesota Supreme Court in a similar case:

"It is often the duty of a fireman, when attending a fire or responding to a fire-alarm, to act regardless of a considerable degree of danger to himself. To hesitate or stop at every slight indication of danger might often be a dastardly failure of duty on his part. His duties are of a public character, and in cities of considerable size these duties are exceedingly important. On many occasions, his instant and fearless action is imperatively necessary to prevent wide-spread disaster, the loss of property, or the loss of life, or both; and, when he is called, he seldom knows the urgency of the occasion until he arrives upon the ground."

Operating Elevators in Public Buildings Is a Governmental Function

The rule generally applied by the courts, that a city is not liable for injuries resulting from negligent performance by its officers and employees of a governmental function, was lately applied to the operation of an elevator in a criminal court building, in the case of Howard vs. City of New Orleans, 105 Southern Reporter, 443, decided by the Louisiana Supreme Court. The Court said:

"While the duty of a municipality to keep its streets and sidewalks in safe condition may be said to be a governmental duty, yet the rule that makes it liable for negligence in failing to exercise the governmental function of keeping them in repair is an exception to the rule above stated, to the effect that a municipality is not liable in damages for failure to exercise a governmental function, intrusted to it, or for the negligence of its agents in exercising it, and, being an exception to the rule, necessarily does not overthrow the rule. . . .

"The Criminal Court building, in which the elevator, in this instance, was operated, is devoted to the holding of the criminal district for the parish of Orleans. The building is used only for public purposes. In it the several division of that court, which is a state institution, convene and hold their sessions. Primarily, the duty of maintaining the building and making it available for use, is a state duty, but the state has intrusted that duty to the city, and did so long before the accident in the present instance occurred, just as it has intrusted the maintaining of the various courthouses in the rest of the state to the respective parishes in which they are located. In our view in operating the elevator, the city was engaged in discharging a public duty and in exercising a governmental function.

Mere Delay in Ordering Local Improvements After Declaring Necessity Does Not Invalidate Proceedings

Ten months' delay on the part of city authorities in proceeding toward street paving, after adopting a resolution of necessity for such improvement, did not preclude further proceedings under the resolution. Reaching this conclusion in the case of Berry vs. Drumright, 237 Pacific Reporter, 102, the Oklahoma Supreme Court said:

"Where the proceedings are otherwise regular, in the absence of statutory regulation, the city does not lose jurisdiction to proceed by reason of mere delay. Whether an indefinite delay would oust the city of jurisdiction is not necessary to decide. . . . In 2 Page & Jones on Taxation by Assessment, sec. 878, it is said:

"'A lapse of more than a year between the time that an ordinance is introduced into the council on the recommendation of the board of local improvements and the time that it is passed does not invalidate the ordinance in the absence of a statute requiring the council to act within a certain time. A lapse of eighteen months or of three years does not invalidate the assessment in the absence of special statute.'

"This text is supported by abundant authority."

Property of City Cannot Lawfully Be Put to Private Use

It is beyond the power of the state or of a city to authorize use of the latter's property for other than a proper "city purpose," declared the New York Supreme Court for New York County in the recent case of Fletcher vs. Hylan, 211 New York Supplement, 727.

WNYC is a municipal broadcasting station maintained and operated by New York City at its expense, as an adjunct to the police and fire departments and such other departments as may require its use. The Court issued an injunction against use of the station for broadcasting political utterances, although it was declared that "naturally there could be no judicial interference with the exercise of proper discretion of those in charge of the city's radio in deciding exactly what should be broadcasted. . . . but it is clear that said

When they demand
"more—and still more—"

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station could not be used for any private purpose of any person, be he a public official or private person."

Showing that the legal principle involved applies broadly to all sorts of property owned by a city, Mr. Justice Mahoney said:

"I do not believe any reasonable person would attempt to justify the use of city-owned automobiles on private excursions outside the city limits, or the use of city material in buildings privately owned."

City Not Liable for Negligence in Collection of Garbage

In the case of Jones vs. City of Phoenix, 239 Pacific Reporter, 1030, lately decided by the Arizona Supreme Court, it was held that negligence in the operation of a motor truck used by the city in collecting garbage fell within the general rule of law that a city is not liable for injuries inflicted upon individuals in the negligent discharge of a governmental function. The opinion cites in support of its conclusion similar holdings by the appellate courts of New Jersey, Pennsylvania, Wisconsin, Missouri, Kentucky and Georgia, and by the United States Supreme Court.

City Has Right, by Ordinance, to Prohibit Barter and Sale of Merchandise on Public Streets

"The courts uniformly hold," declared the Texas Court of Civil Appeals in the case of West vs. City of Waco, 275 Southwestern Reporter, 282, "that the individual citizen has no vested right in the streets of a city, and that the governing body of the city has, within reasonable limits, the right to control the use of its streets in any way that it determines is for the best interests of the public. It is now the established law in this state that the city has a right to prohibit by ordinance the barter and sale of all kinds of merchandise on its public square or streets, and that excepting from said ordinances farm products, sold by the party who produces the same, is not class legislation."

Charges Against Chief of Police Held Insufficient Where No Specific Acts or Omissions Were Set Forth

Charges on which it was sought to remove a chief of police, on the ground of "inefficiency and neglect in performance of duty," were insufficient where no specific acts or omissions were set forth, declared the Kentucky Court of Appeals in the case of Bregel vs. City of Newport, 271 Southwestern Reporter, 665.

The Court also indicated that the mere fact that gambling houses, houses of ill-fame, etc., are shown to have been operated does not charge the chief of police of a city with neglect of duty in the absence of a showing that any facts concerning such places were drawn to that official's attention. And the Court further observed that in determining whether the chief has been guilty of neglect it should be considered that no officer may arrest without a warrant except for an offense committed in his presence or when he has reasonable grounds to believe that a felony has been committed, and that he may not search property without a warrant issued with probable cause.

Liability of City Concerning Golf-Links

A trial court in Pittsburgh is said to have up held the right of one driving through Schenley Park to recover damages against the city on account of injury sustained when a golf-ball from near-by public golf-links crashed through his automobile's wind-shield and struck him in the eye. The newspaper report of the case does not specify the ground on which the decision rests, but it is inferred that if the holding is to be supported by the law laid down by courts of last resort, it must rest on a theory that by providing a public driveway through a park a city owes some duty to travelers to permit no practices which render the driveway unsafe. It could scarcely be claimed that a city would be liable for the unexpected shooting of a golf-ball across a public thoroughfare, any more than if one were hit by a stray bullet from a bandit's pistol. But where a city operates public golf-links so near a public driveway and under such circumstances that flight of balls across the driveway may be foreseen, there is at least plausible ground for arguing that the city has failed to discharge its duty to use reasonable means to promote the safety of travelers.

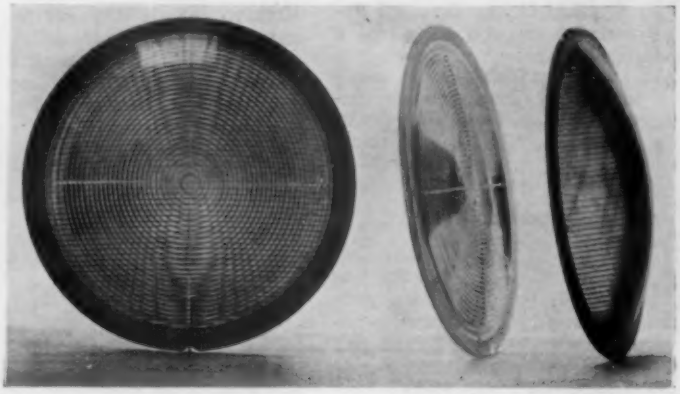
Court Upholds Condition in Grant of Street Railway Franchise That Company Bear Part of Expense of Maintenance

Charter power in a city to grant a street railway franchise "implies a power to attach appropriate conditions thereto; among which are conditions which are suggested by the changes in the surface of the streets directly caused by the new construction. . . . Certainly among such conditions are those arising out of the legal responsibilities of the municipality. Among these specifically and obviously is the duty to exercise reasonable care to maintain its streets in a reasonably safe condition so as to avoid injuries to travelers thereon. So that as the construction and operation of the railway in the streets increases the congestion and the consequent danger of accidents therein for which the city may be held liable, it is quite reasonable to require the company to which such a franchise or privilege is granted to bear a part of the expense of keeping the street in such a reasonably safe condition. For this, among other reasons, such requirements have been almost universally imposed and upheld." (Virginia Supreme Court of Appeals in the case of City of Portsmouth vs. Virginia Railway & Power Company, 126 Southeastern Reporter, 362).

Proving Adoption of Ordinances

Where an ordinance has not been recorded and there is no municipal journal entry showing its adoption, no rights can be claimed under it, according to the decision of the Kansas City Court of Appeals in the case of City of Brunswick vs. Scott, 275 Southwestern Reporter, 994.

For an authoritative article on "Progress of City Planning Law During 1925," by Frank B. Williams, Esq., see the 1926 MUNICIPAL INDEX



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Zoning Notes

Prepared by Frank B. Williams
Author of "The Law of City Planning and Zoning"
From data collected by the Zoning Committee of New York (233 Broadway)
Mr. Williams may be addressed in care of THE AMERICAN CITY, 443 Fourth Avenue, New York

The Illinois Decisions

Brown Deynzer v. City of Evanston; City of Aurora v. Burns—Rehearing; Supreme Court, December Term, 1925.

OUR readers will remember that in "Zoning Notes" for April, 1925, it was stated that the Illinois court in *City of Aurora v. Burns,* had refused an injunction to restrain the erection of a grocery store in a residential district. The Court did not hold that zoning was unconstitutional in Illinois, but that, in so far as it forbade new stores in a district in which existing store buildings were still allowed to be used for business purposes, the Aurora ordinance was contrary to section 22 of Article 4 of the Illinois constitution of 1870, which provides that the General Assembly of that state shall not pass local or special laws granting any special or exclusive privilege, immunity, or franchise. This decision, while it did not declare zoning unconstitutional, rendered it so difficult as to be practically impossible.

It seemed to the Editor of these notes, and was pointed out in the April number of this magazine, that the logic of this case went further than the court which gave it birth would, on maturer consideration, be willing to go; equally affecting, as it does, classifications which, in Illinois as in all the other states of this country, have long been recognized and employed; as, for instance, fire limits in which non-fire-proof buildings existing at the time the district is created are universally allowed to continue and to be used. And such proved to be the fact, the case having just been reversed on rehearing, the Court using fire districts as an illustration, as was done in this magazine. And, generalizing and applying its generalization to the case at hand, the Court goes on most forcibly to say:

"Zoning is regulation by districts and not by individual pieces of property. The classification, as a whole, must be fair, but an absolute identity of treatment of particular parcels of land is not required."

And the Court adds:

"Should any discrimination develop, it can be removed by the administrative action of the Board of Appeals, for which provision is made both by the enabling act and the ordinance."

In their opinion, the judges broadly and ably support and sustain the general principles of zoning, and declare their constitutionality in Illinois. The victory for zoning is complete.

Little room is left for a review of the case of *Brown Deynzer v. City of Evanston,* worthy of a fuller consideration. It sustains the constitutionality of single-family residence districts, which the cases in other jurisdictions of late have so generally supported.

Victories for Zoning

are coming thick and fast. This month it is Illinois whose Supreme Court has placed that great state side by side with California and Massachusetts and New York and the other states in this country which, with so few exceptions, support reason and common sense in the regulation of city growth.

Recent Zoning Ordinances

BALTIMORE, MD.—Ordinance, December 14, 1925
This is the third ordinance passed since the Goldman decision; see Comments on *Tighe v. Osborne, Inspector of Buildings for Baltimore City, below.*

HAVERHILL, MASS.—Ordinance, October 8, 1925

SOMERVILLE, MASS.—Ordinance, December 22, 1925

BUFFALO, N. Y.—Ordinance, December 16, 1925

Other Recent Zoning Cases

CALIFORNIA.—*Fourcade v. City and County of San Francisco, 70 California Decisions 222.* It cannot be said that milk must necessarily be pasteurized close to the consumers, in districts free from dust, etc., in order to lessen the possibility of contamination. Until it is found that milk can not be pasteurized and distributed from districts other than residential districts with reasonable safety and convenience, it cannot be said that the relegating of pasteurizing plants to districts other than residential or commercial is unreasonable and arbitrary.

The introduction of any form of business or industry into home districts is objectionable as tending to lower property values.

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The power of a municipality to create and maintain residential districts being established, and the legislative body of the city having decided that milk-pasteurizing plants should be excluded from them, the Court cannot dispute the wisdom of this decision.

ILLINOIS.—*Leopold v. Zoning Board of Appeals of Chicago, Superior Court, July, 1925.* Decision of the Board of Appeals, refusing to allow an apartment in a single-family residence district, sustained. For two different versions of this case see the *Chicago Realtor* for August, 1925, and for October, 1925. The case is not reported and no written opinion has been filed.

MARYLAND.—*Tighe v. Osborne, Inspector of Buildings for Baltimore City, Court of Appeals,* published in *Baltimore Daily Record,* December 12, 1925. An application for a permit to erect in a residential neighborhood, a two-story brick stable for thirty horses was refused by the Building Inspector and the Board of Appeals as contrary to the provisions of ordinance No. 334, which was the second ordinance enacted since the decision in the Goldman case, reviewed in our "Zoning Notes" of March, 1925. This second ordinance provides that no building shall be erected nor an existing one changed for a purpose which, because of the location of the land, or the use to which the building is intended to be put, would create hazards from fire or disease or in any way menace the public welfare, security, health, or morals; and the building commissioner is authorized to issue permits only if in his judgment, after investigation, such was not the purpose or would not be the result. An appeal is given to the Board of Appeals. *Held,* reversing the decision below, that the police power is the power to preserve the public order, health, safety, and morals; and the words "general welfare" added in many cases do not enlarge the scope of that power so as to reach an infinite variety of objects which could not be referred to those definitely specified in the definition, but are synonymous with, and referable to, the specific objects enumerated in that definition.

Nor has the municipal assembly of the city the right to redelegate its discretionary powers as attempted in this ordinance, although it may delegate ministerial or administrative functions. If a certain discretion may be delegated, the necessary machinery for its exercise must be created, and sufficient rules and standards created. This was not done by this ordinance, or elsewhere by the municipal assembly.

Since the decision has been rendered, the City Council has passed the ordinance noted in our table of recent zoning ordinances above. This ordinance is given in full in the *Baltimore Municipal Journal* of December 21, 1925. In it practically the same powers are given the building inspector and the Board of Appeals as in the ordinance passed on by the Court in this case, except that power to regulate in order to preserve and promote the general welfare is not granted.

NEW JERSEY CASES.—Since the decision of the Court of Errors and Appeals in *Krumgold and Son, Inc. v. Jersey City,* summarized in our December "Zoning Notes," a number of decisions (*Kantorowitz v. Bigelow, Superintendent, etc., of City of Newark, and Board of Adjustment of the City of Newark; State ex rel. Treat Investment Co., Inc. v. Bigelow, Superintendent of Buildings of City of Newark; Chancellor Development Corporation v. Board of Adjustment of City of Newark, Superintendent of Buildings of City of Newark and City of Newark: Herman and Co. v. same; Steinberg v. same*); have been rendered in the Supreme Court, all of which were decided in accordance with the law laid down in the Krumgold case. These cases need no further comment.

A fuller statement however, should be made of the case of *Losick v. Binda, Building Inspector,* to the effect that:

The fact that relator, holding the legal title, was not the absolute owner of the property in question, but a joint owner, does not disqualify him from applying for mandamus to compel the issuance of a building permit.

Legal or constitutional questions involved on mandamus proceedings to compel the issuance of a building permit are not subject matter for the determination of a zoning board of adjustment created under the zoning law of 1924, inasmuch as the board was not created for the purpose of reviewing the legal or equitable character of the inspector's act in refusing a building permit. Hence an application for a writ of mandamus to the Supreme Court before resorting to the board of adjustment was not premature.

NEW YORK.—*New York State Investing Co. v. Brady, Superintendent of Buildings of Borough of Manhattan, Appellate Division,* reported in *New York Law Journal,* December 16, 1925. Where the power to issue permits to maintain gasoline service stations was in the fire commissioner, who had duly issued such a permit, upon the strength of which definite obligations were incurred and expenditures made, *held* that a subsequent amendment to the building zone resolution prohibiting the erection of gasoline filling stations in the business districts of the city could not affect the original valid permit, the Legislature not having intended to give the city such power.

One who incurs liabilities and obligations relying upon a permit is entitled to protection.

Recent Zoning Literature

THE WULFSOHN CASE.—When the summary of the Wulfsohn case, appearing in the January number of THE AMERICAN CITY, was written, the opinion had not been printed. The full text of that notable opinion is given in the *New York Law Journal* of December 23, with an editorial paying due tribute to its ability and importance. An excellent review of the case will be found in the December, 1925, number of *Housing Betterment,* published by the National Housing Association. The review gives long extracts from the text of the opinion.

The *Illinois Law Review* for November, 1925, contains an article by Newman F. Baker, Special Assistant Corporation Counsel of City of Chicago, and Graduate Fellow of the University of Chicago Law School. In it the legal situation in each state is most helpfully summarized with reference to the leading cases.

City Planning for January, 1926, prints in full a paper read by Alfred Bettman before the Ohio State Conference on City Planning, October, 1925. It is an excellent statement of the legal situation of zoning in this country at this time. The magazine also contains the regular departments devoted wholly or partly to zoning, entitled "Legal Notes" and "Zoning Round Table."

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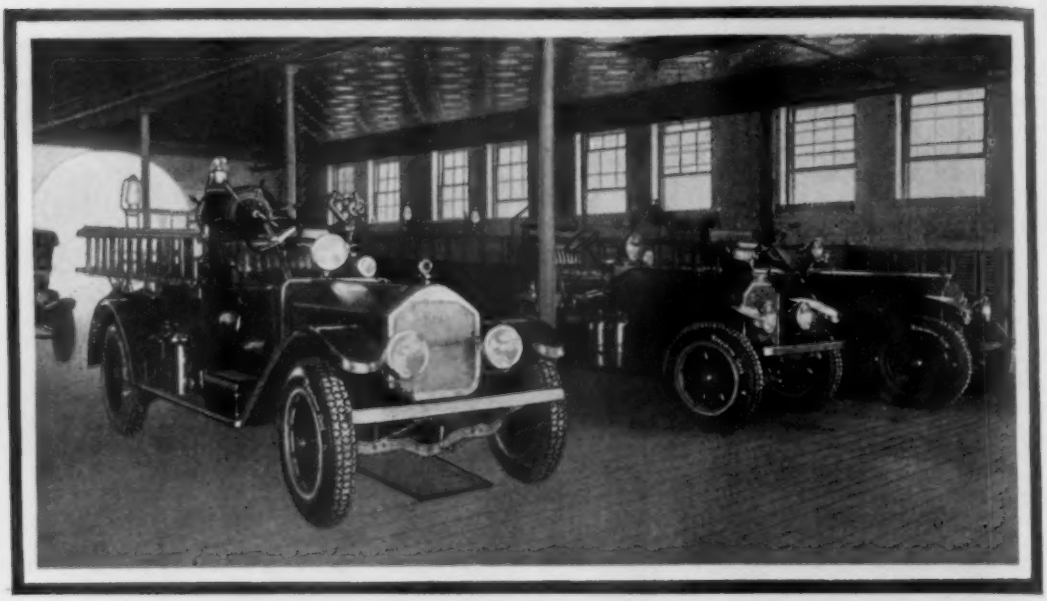

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Towns and the Land.—Urban Report of the Liberal Land Committee, Great Britain, 1923-25. Hodder and Stoughton, Limited, London, England. 288 pp. 1 shilling net.

The Land Committee has already issued a report entitled "The Land of the Nation," which deals with the agricultural use of the larger portion of the land in Great Britain. The present report has to do with the problems that arise from the commercial, industrial, recreational, and domestic use of the smaller portion of the land. The need is emphasized of a land policy that will put within the reach of every citizen room to live, work, and play in. The principles underlying the proposals of the Committee are as follows: (a) Land is a national possession over which the State must reassert its rights to ensure that the use and control of land shall be in the interests of the community; (b) Subject to the proper use of the land, it should be held by individuals on conditions permitting the free play of private enterprise and personal initiative; (c) Persons granted tenure of land shall pay for the value they create; (d) Persons relinquishing their tenure of land shall be entitled to recover a value they have created, but not a value created independently of them by the community; (e) The community is entitled to the value it creates. The proposals of the Committee are clearly explained in their vital relation to town and regional planning and zoning. Leasehold reform is an important section of the proposals. The ideas and methods of other countries in dealing with these problems are presented in Part 3 of the report.

The Confessions of a Reformer.—By Frederic C. Howe. Charles Scribner's Sons, New York. 1925. VIII + 352 pp. Portrait. $3.00.

A frank and enlivening autobiography, written with sufficient detachment to give perspective, and with sufficient accuracy of memory and records to give definiteness and authority. The author is able to see himself at times in a humorous light and to acknowledge his obsessions and mistakes. His powers of analysis are brought to bear on the political history—local, national, and international—to which he contributed twenty-five years of his life, and on the characters and services of the men who were prominent in these fields, and in business and general public affairs. It is the stirring history of his own changing view-points, revealing conflicts, reactions, adjustments, and at last the contentment of one who still believes in reform but prefers the reform that is taking place within himself.

Bats, Mosquitoes and Dollars.—By Dr. Charles A. R. Campbell. The Stratford Company, Boston. 1925. VIII+262 pp. Illustrated. $3.00.

The author of this book has devoted many years to the study of malaria, its cause, nature, results, and cure. He presents the bat as the most relentless enemy of the malaria-carrying mosquito and shows how the protection of bats for this purpose is practicable and financially wise. He advocates the building of homes for bats, providing for their peculiar habits and protecting them from their enemies, so that they will eradicate malaria in their vicinity, and he claims that each bat roost will produce enough high-grade guano to become a paying investment. The bat is acquitted of the charge of harboring bedbugs or of doing any more serious harm than eating the fat from hams and bacon in smokehouses. The results of experiments and study have proved that one bat in one night consumes 3,375 mosquitoes. Many evidences are cited showing the beneficial effects of bat roosts that are in actual service. Part II shows the dragon fly as another powerful ally against mosquitoes. Part III discusses the bedbug as the carrier of smallpox.

Hammond's Handy Atlas of the World.—Containing new maps of all the countries of the world, accompanied by a new ready-reference gazetteer-index of the world and a new and comprehensive index of cities and towns, with latest population figures, together with a new series of maps of the American states accompanied by individual indexes of the states, with 1920 population figures. 1925. 160 pp. Handy size. $1.00. (Apply to C. S. Hammond & Company, 30 Church Street, New York.)

Public Health Law.—By James A. Tobey, M. S., LL. B., Lecturer on Public Health Law at the Massachusetts Institute of Technology, Yale School of Medicine, and Columbia University. Foreword by Charles V. Chapin, M. D., Sc. D. The Williams & Wilkins Company, Baltimore. 1926. XVIII+304 pp. $4.50.

A manual of law for sanitarians, covering the fundamental legal principles involved in public health administration and showing where the law applicable to this broad field may be found. It makes plain to the health officer the means by which it is possible to secure and enforce needed health legislation, and also the legal obstacles to such progress. The organization, powers and functions of state and local health departments, the legal element in the control of communicable diseases, in dealing with nuisances and insanitary conditions, and in work for social and mental hygiene; the liability and legal responsibility for injuries or damages arising from public health activities; the drafting of health legislation—these are some of the important divisions of the discussion in this valuable book.

Proceedings of the National Conference of Social Work, Annual Session, 1925.—Published for the Conference by The University of Chicago Press, Chicago, Ill. December, 1925. VII+793 pp. $3.00.

This is the report of the 52nd annual session, held in Denver, Colo., June 10-17, 1925. The Conference was formerly the National Conference of Charities and Correction, and its permanent headquarters are 23-25 East Ninth Street, Cincinnati, Ohio. The subjects discussed are grouped under the following heads: Children; Health; The Family; Industrial and Economic Problems; Neighborhood and Community Life; Mental Hygiene; Organization of Social Forces; Public Officials and Administration; The Immigrant; Professional Standards and Education.

Women Police.—By Chloe Owings, Docteur de L'Université de Paris. Preface by Lieutenant Mina C. Van Winkle, Director of the Woman's Bureau, Metropolitan Police Department, Washington, D. C. Frederick H. Hitchcock, New York. 1925. XXII+337 pp. $2.50.

This book has been written for the International Association of Policewomen, and is one of the publications of the Bureau of Social Hygiene, Inc., 370 Seventh Avenue, New York. It brings together all the available information on the subject in the British Isles and Dominions, Continental Europe, and other foreign countries, and in the United States from the earliest beginnings of the movement to the present time. There is a chapter on the International Association of Policewomen. Very valuable information is given on the teachings of experience in the organization of the work of women police and in the various phases of the problems met. also as to the training available for this important community service.

The City.—By Robert E. Park, Ernest W. Burgess, and Roderick D. McKenzie; with a bibliography by Louis Wirth. The University of Chicago Press, Chicago, Ill. 1925. XI+239 pp. $2.10 postpaid.

A study of human behavior in the urban environment, presented in a group of articles by experienced sociologists: Suggestions for the Investigation of Human Behavior in the Urban Environment, the Growth of the City—An Introduction to a Research Project; The Ecological Approach to the Study of the Human Community; The Natural History of the Newspaper; Community Organization and Juvenile Delinquency; Community Organization and the Romantic Temper; Magic, Mentality, and City Life; Can Neighborhood Work Have a Scientific Basis?; The Mind of the Hobo—Reflections upon the Relations between Mentality and Locomotion.

Importance of Planning Transportation in City Development.—By C. E. Smith, of C. E. Smith and Company, consulting engineers, St. Louis, Mo. An address delivered at the annual convention of the American Electric Railway Association, at Atlantic City, N. J., October 6, 1925. 12 pp. A look into the future. (Apply to the author.)

Florida in the Making

THE story of Florida is a story of keen activity in real estate development and building construction, and in that story International Trucks are playing an important part. Take Pasadena-on-the-Gulf, at St. Petersburg, for instance. The Pasadena fleet of 16 Heavy-Duty International Trucks has been at work for nearly four years, creating a magnificent residential city out of 3,000 acres of wilderness.

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Studies of Impounded Water in Relation to Malaria.—By E. H. Gage, Associate Sanitary Engineer, United States Public Health Service. Reprint No. 1022 from the *Public Health Reports*, June 26, 1925. The studies reported were conducted in the Piedmont region of North Carolina during 1923, and covered different types of ponds. An attempt is made to present a clear picture of the possibilities of malaria transmission in each case and to point out the precautions which were taken or which should have been taken in order to minimize the danger. 5 cents. (Apply to Government Printing Office, Washington, D. C.)

Report Made to the Committee on the Classification of Library Personnel of the American Library Association.—By the Bureau of Public Personnel Administration, acting as technical staff for the Committee. December 31, 1925. In two parts; 52 and 70 mimeographed pp. A revised report embodying proposed classification and compensation plans for the library profession, including the rules recommended for adopting, applying, and administering these plans in an individual library. Part 2 consists of complete specifications for 45 classes of library positions. The report will be further revised and probably presented in printed form early in the summer of 1926. 10 cents for postage. (Apply to Bureau of Public Personnel Administration, 26 Jackson Place, Washington, D. C.)

Highway Research Board.—Summary Bulletin: Fifth Annual Meeting of the Board, which is organized under the Division of Engineering and Industrial Research of the National Research Council. Giving summaries of the committee reports and all essential information as to the organization of the Board. 19 pp. Illustrated. (Apply to the Board, Washington, D. C.)

Crystallizing Public Opinion for Good Government.—By Edward L. Bernays. An address before the annual meetings of the National Municipal League and the American Civic Association in joint session at Pittsburgh, Pa., in November, 1925. 10 pp. Suggestions as to analyzing the public mind and the means of approaching it with an effective appeal. (Apply to the author, 9 East 46th Street, New York.)

Through-Traffic Streets.—A plan for a comprehensive system of through traffic streets, prepared by the Chicago Plan Commission for the City Council Committee on Efficiency, Economy and Rehabilitation. Submitted November 19, 1925. 23 quarto pp. Illustrated. (Apply to the Chicago Plan Commission, Chicago, Ill.)

Dates Ahead.—Prepared by E. G. and M. S. Routzahn. Covering October, 1925-September, 1926. A list of holidays, anniversaries, special weeks, campaigns and conventions, for the use of publicity workers in social welfare. 9 mimeographed pp. "Dates to use or to avoid in planning your own program." The list will be supplemented from time to time. 20 cents. (Apply to Committee on Publicity Methods, 130 East 22nd Street, New York.)

The Forestry Primer.—Published by The American Tree Association, 1214 Sixteenth Street N. W., Washington, D. C., to mark the semi-centennial of the first step in forestry by the United States Government and to help the coming generations of Americans to profit by the lessons of the past. 32 pp. Illustrated. (Apply to the Association.)

Piers and Wharves.—Regulations for their Construction and Protection. Prepared by the Committee on Piers and Wharves of the National Fire Protection Association, 40 Central Street, Boston, Mass. 1925. 22 pp. "It is believed that from the fire hazard standpoint this is the first attempt to establish standards for the construction and protection of this class of property."

How to Secure Better Prohibition Enforcement.—An address before the New York State W. C. T. U. convention at Rome, N. Y., October 17, 1925, also before the Methodist Ministers Association of Detroit, Mich., November 16, by Rev. O. R. Miller, of Albany, N. Y., State Superintendent of the New York Civic League, revised to November 20. In the December, 1925, issue of *The Reform Bulletin*, 452 Broadway, Albany, N. Y. (Apply to the Bulletin.)

The Janitor and the School Child—Ventilation and Health.—By C.-E. A. Winslow, Professor of Public Health, Yale School of Medicine; Chairman of New York State Commission on Ventilation. Published by the Metropolitan Life Insurance Company, 1 Madison Avenue, New York. 12 pp. Illustrated. Showing the janitor's responsibility for maintaining good air conditions in the building under his charge, and giving simple rules for accomplishing this. (Apply to the publishers.)

Summary of Trinity River Pollution Studies.—By Dr. H. O. Sappington, State Health Officer, Division of Sanitary Engineering, Texas State Board of Health, Austin, Texas. Reprint from the *Southwest Waterworks Journal*, December, 1925. 18 quarto pp. Illustrated. The study was undertaken to ascertain the extent and causes of the stream's evident pollution and to determine what remedial measures might be employed. (Apply to the Division of Sanitary Engineering.)

New York State Commission of Housing and Regional Planning.—Report on the need of extending the rent laws which automatically expire February 15, 1926. Published December 23, 1925. 110 pp. Prepared for the Commission by George Gove and A. F. Hinrichs, of the staff of the Bureau of Housing and Regional Planning in the Department of Architecture, and submitted by Clarence S. Stein, Chairman of the Commission. The findings are based on public hearings and a thorough investigation of housing conditions in those cities affected by the existing rent restriction laws: New York, Buffalo, Albany, Schenectady, Amsterdam, Troy, Cohoes, Watervliet, and Rensselaer. (Apply to the Bureau, 949 Broadway, New York.)

National Safety Council.—Proceedings of the Fourteenth Annual Safety Congress, held in Cleveland, Ohio, September 28 to October 2, 1925; Part II, Public Safety Sessions. The Proceedings of the Industrial and General Sessions are printed as Part I. 164 pp. Tables, charts, forms. Valuable material on public safety education, traffic control, and accident prevention. 50 cents. (Apply to the Council, 168 North Michigan Avenue, Chicago, Ill.)

Salaries of Village Officials in Wisconsin, 1925.—Compiled by Gladys West Olson. Information Report No. 45 of the Municipal Information Bureau of the University of Wisconsin, Madison, Wis. December, 1925. 15 mimeographed pp. Replies from 303 villages are embodied in the tables, and the salaries shown are those in force for 1925-26, with certain exceptions. (Apply to Ford H. MacGregor, Chief of the Bureau.

Indiana Taxpayers' Handbook.—"How the power of review vested in the State Board of Tax Commissioners has resulted in important reductions of levies and bond issues." Published by the Indiana Taxpayers' Association, 314 Hume-Mansur Building, Indianapolis, Ind. 23 pp. This pamphlet summarizes the Indiana Tax Plan and tells how it works, and also gives the appeal sections of the Indiana Tax Law, with other pertinent information. (Apply to Harry Miesse, Secretary of the Association.)

"A State Park Every Hundred Miles."—This is the slogan of the National Conference on State Parks. Its Number Three bulletin, December, 1925, contains news from various states regarding state park development. 11 pp. with attractive cover showing winter sports in Palisades Interstate Park, New York. (Apply to Beatrice M. Ward, Secretary of the Conference, Union Trust Building, Washington, D. C.)

The Motor Bus as a Common Carrier.—An analysis of bus operation in eight states. Reported by Henry R. Trumbower, Economist, United States Bureau of Public Roads. In the December, 1925, issue of *Public Roads*. The data were obtained directly from the records of the public service commissions of the states of Connecticut, Maryland, and New Hampshire. For the other states the material analyzed was obtained from operating summaries published in mimeographed form by the American Railway Association, compiled therefor by the state utilities commission. (Apply to the Bureau of Public Roads, Washington, D. C.)

Recommended Practice for Arrangement of Building Codes.—Report of the Building Code Committee of the U. S. Bureau of Standards, July 15, 1925. VIII + 29 pp. Presenting a recommended outline for writing a building code, arranged by chapters, sections, and subdivisions in the order in which reference is necessary to code provisions when a building is planned, designed, and erected. 10 cents. (Apply to Government Printing Office, Washington, D. C.)

Pennsylvania Commercial Secretaries' Association.—Proceedings of the annual meeting, nineteenth session, of the Association, held in Harrisburg, Pa., October 13 and 14, 1925. 54 pp. (Apply to Raymond Woodrum, Secretary of the Association, Norristown, Pa.)

Manual of Instructions, Bridge Department, State of California Highway Commission.—August, 1925. 179 pp. Charts, diagrams. (Apply to Harlan D. Miller, Bridge Engineer, California Highway Commission, Bridge Department, Sacramento, Calif.)

Why BUDD-MICHELIN Dual Wheels bring new economies to motor transportation

BUDD-MICHELIN Dual Wheels make it possible for heavy trucks to ride on *regular size* pneumatic tires, and get almost unbelievable mileage from the tires.

Pneumatics bring better traction, of course. Greater speed. Less wear and tear on the truck. Lower upkeep and longer life. Safety for fragile loads. Less strain on the driver.

By covering the ground at greater speed, it is often possible to rearrange routes and cut down the number of trucks and drivers.

The bus industry has shown the way, and already the revolution has started in the truck industry. Heavy buses—over 30,000 of them—almost 100 per cent of those in operation—are on Budd-Michelin Wheels and pneumatic tires. They average from 15,000 to 20,000 miles to a set of tires. They are swift and safe and dependable.

The swing of trucks to Budd-Michelin Dual Wheels and pneumatics is not a flurry, but a definite movement that is going to stabilize truck transportation—give the truck greater usefulness and broader acceptance than it has ever had. Any truck manufacturer will supply new jobs on Duals and pneumatics, or your present equipment can be converted. Write us for the experience of others.

The Budd-Michelin equipment — two Budd-Michelin single wheels in front, two Budd-Michelin Dual Wheels in the rear (pairs of single wheels acting together as units). All wheels completely interchangeable either as units or as halves of Duals. One spare.

BUDD
WHEEL COMPANY
Philadelphia

When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

Aerial Health and Relief Work.—By H. C. Loeffler, of the Relief Division, League of Red Cross Societies. 5 pp. in the December, 1925, issue of *The World's Health*, the monthly review of the League, 2, Avenue Velasquez, Paris, France. Illustrated. This is the fourth in a series of articles covering the present-day civil and humanitarian activities of the aeroplane. It is stated that later articles will describe aerial photography, forestry, anti-pest, and other uses. The magazine is published in three editions—English, French, and Spanish. 10 cents per copy. $1 per year. (Apply to the magazine.)

The Port of New Orleans To-day.—Address of Commander J. H. Walsh, General Manager, Board of Commissioners of the Port of New Orleans, delivered before the Foreign Trade Bureau of the New Orleans Association of Commerce, October 30, 1925. Published November 1, 1925. 21 pp. Reviewing, not the policies, but the services and facilities of the Port. (Apply to the author.)

New York State Tax Commission.—Annual Report for 1924. 533 pp. (Apply to the Commission, Albany, N. Y.)

The Cost of Cook County [Illinois] Government Activities, with Data on the Application of the County "Corporate Fund" Dollar.—Report to the Board of Cook County Commissioners by J. L. Jacobs & Company, engineers, cost accountants, and statisticians, Monadnock Building, Chicago, Ill. August 20, 1925. Mimeographed. Tables, diagrams. Analyzing and summarizing the 1923 expenditures and the 1925 budget appropriations, and giving a statement on the net corporate expenses for the years 1912-1925 inclusive. (Apply to J. L. Jacobs & Company.))

Directory of Psychiatric Clinics for Children in the United States.—Publication No. 7 of the Joint Committee on Methods of Preventing Delinquency, 50 East 42nd Street, New York. 1925. 100 pp. 50 cents. The term "psychiatric clinic" as here used means one in which the staff includes as director a graduate of a recognized medical school who specializes in the treatment of nervous and mental disorders, and assistants competent to give complete psychological examinations and to secure adequate social histories; in which the services of this staff are available to the public at regular intervals; and the function of which is primarily to study and treat behavior problems among children. (Apply to the Committee.)

Our Boston.—Vol. I, No. 1 (December, 1925). Published monthly by the Women's Municipal League of Boston, 25 Huntington Avenue, Boston, Mass. 44 pp. Illustrated. This new periodical seeks to picture the city of Boston "with its good features and its bad, its conveniences and its inconveniences, its beauties and its uglinesses." It is free from political bias and published with a constructive purpose. The first number contains articles on the disposal of Boston's refuse; the Loop Highway; and the Armenians of the city; with reviews, a Question Box, and news notes. (Apply to the League.)

Bibliography on Children in Street Trades in the United States.—Compiled by Laura A. Thompson, Librarian, U. S. Department of Labor. 12 pp. in the December, 1925, issue of the *Monthly Labor Review*, published by the Bureau of Labor Statistics, U. S. Department of Labor. (Apply to the Bureau.)

The Plan of Chicago in 1925.—Fifteen Years' Work of the Chicago Plan Commission, November 1, 1925. 52 pp. Illustrated. (Apply to the Commission, Hotel Sherman, Chicago, Ill.)

General Industrial Survey of Peru, Ind.—Prepared by the Industrial Committee of the Peru Chamber of Commerce. 21 mimeographed pp., besides illustrations. (Apply to the Chamber.)

An Industrial and Mercantile Survey of Coatesville, Pa.—Made by the Coatesville Improvement Association. 1924. 22 mimeographed pp. (Apply to the Association.)

Municipal Reports

BUFFALO, N. Y.—Annual Report, Bureau of Public Utilities, year ending June 30, 1925

JACKSON, MISS.—Quarterly Financial Statement, July 1 to September 1, 1925; Annual Report, City Auditor, year ending September 30, 1925

KANSAS CITY, KANS.—Annual Report, Department of Water, Light and Power, 1924

PASADENA, CALIF.—Annual Report, Light and Water Department, 1924-1925

MUSKOGEE, OKLA.—Annual Report of the City, year ending June 30, 1925

SAN FRANCISCO, CALIF.—Annual Report, Park Commissioners, 1924

On the Calendar of Conventions

FEBRUARY 4.—NEWARK, N. J.
New Jersey State League of Municipalities. Annual convention. Secretary, Sedley H. Phinney, 34 West State Street, Trenton, N. J.

FEBRUARY 10-11.—HARRISBURG, PA.
Association of City Planning Commissions of Cities of the Third Class in Pennsylvania. Secretary, Leo. J. Buettner, Johnstown, Pa.

FEBRUARY 17-19.—ATLANTIC CITY, N. J.
New Jersey Mosquito Extermination Association. Annual convention. Assistant Secretary, Frank Miller, State Experiment Station, New Brunswick, N. J.

FEBRUARY 17-19.—SYRACUSE, N. Y.
Association of Highway Officials of the North Atlantic States. Annual meeting. Secretary-Treasurer, A. Lee Grover, State Highway Commission, Trenton, N. J.

FEBRUARY 21-25.—WASHINGTON, D. C.
National Education Association, Department of Superintendence. Annual meeting. Secretary, S. D. Shankland, 1201 16th Street, N. W., Washington, D. C.

FEBRUARY 22-23.—CHICAGO, ILL.
American Concrete Pipe Association. Annual convention. Secretary, M. W. Loving, 111 West Washington Street, Chicago, Ill.

FEBRUARY 23-26.—CHICAGO, ILL.
American Concrete Institute. Annual convention. Secretary, Harvey Whipple, 2970 West Grand Boulevard, Deroit, Mich.

MARCH 3-5.—ST. CATHARINES, CANADA.
American Water Works Association, Canadian Section. Annual meeting. Secretary, A. U. Sanderson, Island Filtration Plant, Toronto, Ont.

MARCH 3-5.—REGINA, SASK.
Saskatchewan Association of Rural Municipalities. Annual convention. Secretary, E. G. Hingley, Farmers' Building, Regina, Sask.

MARCH 23-25.—WASHINGTON, D. C.
National Conference on Street and Highway Safety. Secretary, Ernest Greenwood, Department of Commerce, Washington, D. C.

MARCH 29-31.—ST. PETERSBURG, FLA. APRIL 1.—WEST PALM BEACH, FLA.
National Conference on City Planning. Annual conference. Secretary, Flavel Shurtleff, 130 East 22nd Street, New York.

APRIL 12.—NEW YORK.
National Committee on Prisons and Prison Labor. Annual meeting. Secretary, Miss Julia K. Jaffray, 4 West 57th Street, New York.

MAY 10-13.—ATLANTIC CITY, N. J.
National Fire Protection Association. Annual meeting. Secretary, Franklin H. Wentworth, 40 Central Street, Boston, Mass.

MAY 11-13.—WASHINGTON, D. C.
Chamber of Commerce of the United States of America. Fourteenth annual meeting. Secretary, D. A. Skinner, 1615 H Street, N. W., Washington, D. C.

WEEK OF MAY 17.—ATLANTIC CITY, N. J.
American Health Congress. Address: Miss Sally Durham Hanshue, Secretary, Committee on General Arrangements, National Health Council, 370 Seventh Avenue, New York.

JUNE 7-11.—BUFFALO, N. Y.
American Water Works Association. Annual meeting. Secretary, Beekman C. Little, 43 City Hall, Rochester, N. Y.

OCTOBER 19-22.—NEW ORLEANS, LA.
International Association of Fire Engineers. Annual convention. Secretary, James J. Mulcahey, City Hall, Yonkers, N. Y.

Backfilling On a Production Basis

Faced with an acute labor shortage and having a schedule of 35,000 feet of pipe line a week, the Detroit City Gas Company met the situation by installing Fordson tractors for backfilling.

These tractors are fitted with a power take off controlling two scrapers. The tractor, which can be operated in narrow places where big cumbersome machinery cannot be set up, moves steadily along the trench, filling in the dirt more rapidly than a crew of shovel workers and at a considerable saving. This type of equipment is particularly valuable on the numerous short trench jobs which are always scattered throughout any growing city.

Public service corporations can materially reduce the expense of pipe line installations by the use of Fordson backfiller

Fordson Tractor
$495
f. o. b. Detroit

Any authorized Ford dealer will gladly give you a demonstration at your convenience.

Ford Motor Company
Detroit, Michigan

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

A New Waste Collection Truck

The new Atia ash and garbage truck which has recently been placed in service by the city of Boston, Mass., has a novel device in a loading hopper the top edge of which is only 30 inches above the street. This hopper, which is 9 feet long and 20 feet high in front, will hold about 12 cans of refuse. It is quickly dumped into the body by means of a power take-off controlled from the driver's seat. The lifting capacity of the power take-off is about 2,500 pounds, which gives ample excess power to raise the bucket when loaded with dry ashes. As an additional safety factor against overloading, it is equipped with a friction clutch which automatically slips when the load reaches 2,500 pounds.

One of the distinct advantages of this truck is the fact that it minimizes obnoxious odors and the nuisance of dust created in loading ash trucks. The body proper is in the form of a tank which is entirely enclosed except for the small portion at the top through which the bucket dumps when raised. The body has a capacity of 9 cubic yards and is 3 feet 10 inches wide and 11 feet long. The hood completely encloses the open end of the loading bucket when it is dumping or when not in use.

The body is dumped by opening the hinged tail-plate at the rear and raising the front end of the body. It is said that only two men are required to satisfactorily operate this truck and that it is possible to make collections more quickly than with the older types of trucks. This equipment is manufactured and patented by the Atia Corporation, 150 Broadway, New York.

Yeomans' New Sales Manager

The Yeomans Brothers Company, 1417 Dayton Street, Chicago, Ill., manufacturers of sewage ejectors and pumping machinery, have announced the appointment of David W. Burgoon as Sales Manager for the company.

Hubbard Joins Vibrolithic Organization

Michigan Vibrolithic, Inc., 1111 Kresge Building, Detroit, Mich., an organization selling Vibrolithic and Interlocking bituminous pavements in the state of Michigan, has announced the addition of O. C. Hubbard to its personnel as Vice-President and Manager. Mr. Hubbard will have charge of promotion and sales for the company. He has had a long and profitable experience in the construction field. For twelve years he was with the Service Department of the Universal Portland Cement Company, operating in Illinois and Wisconsin. In 1910 he organized the Wisconsin Mineral Aggregate Association and was active as its Secretary until July, 1922. He then accepted a position as Sales Manager with the Janesville Sand and Gravel Company, Janesville, Wis., the largest producers of sand and gravel in Wisconsin, which position he left to join the Vibrolithic organization.

THE NEW ATIA RUBBISH AND GARBAGE BODY MOUNTED ON AN AMERICAN-LAFRANCE TRUCK

THIS advertisement is about making the streets of your town fit for "summer" driving all winter long.

—And incidentally, about a way to keep business moving in spite of snow storms.

Figure this up for yourself. If your town had one hundred, two hundred, three hundred, or perhaps four hundred efficient snow shovelers, who could work day and night, you'd be assured snow-free streets.

And the Barber-Greene Snow Loader is 100 to 200 shovelers wrapped up into one efficient, tireless machine.

Such a machine cannot help but effect savings for you. And you'll realize the tremendous totals of those savings, when you are able to use your car every day—when you see business booming along as usual.

Certainly you will be interested in the Barber-Greene booklet, *Modern Snow Removal.* It shows in facts and figures how a number of cities and towns, the size of yours, are making their streets fit for automobile driving all winter long.

A copy of *Modern Snow Removal* may be had upon request.

BARBER-GREENE COMPANY—*Representatives in 50 Cities*—515 W. Park Ave., Aurora, Illinois

BARBER GREENE
SNOW LOADERS

When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

SOME OF THE WORK DONE BY THE HEPNER ROOT CUTTER

A Hand Tool for Cleaning Sewers

A hand tool which can be used for cutting the root growth out of sewers has been developed by the Hepner Sewer Root Cutter Company, Freeport, Ill. This cutter consists of two blades of plow steel sharpened to a knife edge. The cutters are held apart by two arms of spring steel which allow the root cutter to be pushed through a sewer where the joints are slightly out of alignment. The arrow in the center pierces the root mass, and as the roots are cut loose they pack back into the spring steel arms. The prongs on the arrow keep the roots that have been cut off securely within the cutter when it is being withdrawn after it has gathered its load. The cutter is provided with a shank at the back end shaped to fit any sewer-rod coupling.

The operating of the root cutter is similar to the simple operation of rodding a stretch of sewer or of pushing the rods through an obstruction in the sewer to another manhole for the purpose of pulling a cable through. With the Hepner root cutter no cables or windlasses are used. Ordinary sewer rods with the root cutter at the end, and one or two men in a manhole, ram the cutter at the end of the rods against the mass of roots which are giving the trouble. When the cutter becomes filled with roots which it has cut off, it is impossible to ram it further and the cutter may be withdrawn and emptied and the operation continued until the passage is clear.

Two men with this cutter are said to be able to clear roots and other obstructions from sewers if the obstruction is within 250 feet of a manhole —and it is seldom that manholes are over 500 feet apart. The root cutter is made in sizes for 4-inch, 6-inch, 8- to 10-inch, and 12- to 14-inch sewers.

New Simplex Wire Branch Office

The Simplex Wire and Cable Company, 201 Devonshire Street, Boston, Mass., has announced the opening of a branch office in the Union Trust Building, Euclid Avenue and East 9th Street, Cleveland, Ohio, in charge of William H. La Mond as Manager.

Allis-Chalmers Opens New Sales Office

The Allis-Chalmers Manufacturing Company has announced the opening of a new district office in Lima, Peru, in charge of W. G. Bolton. This office, as well as the one in Oruro, Bolivia, is a branch of the company's office at Santiago, Chile, of which W. R. Judson is Manager. The Oruro office is in charge of P. G. Gilliard, who succeeds Erling Winsnes, who has returned to the United States.

A domestic branch sales office has been opened in Houston, Texas, in charge of R. I. Moore, who was previously located in the Dallas office. Permanent quarters have been secured at 1108 Post Dispatch Building. The Houston office will be operated as a branch of the Dallas district, of which E. W. Burbank is District Manager.

Clow Moves to New Plant

James B. Clow & Sons, Chicago, Ill., on January 2 moved into its new plant, which is said to be the largest in the world devoted exclusively to the distributing of plumbing, heating, and steam supplies. The ground floor space of the building is 80,000 square feet, the buildings are 724 feet long, there is sufficient track room for 10 freight cars and the loading room is of sufficient size to load 12 largest size motor trucks at once. The steel and wrought iron pipe warehouse is sufficiently large to stock 3,500 tons.

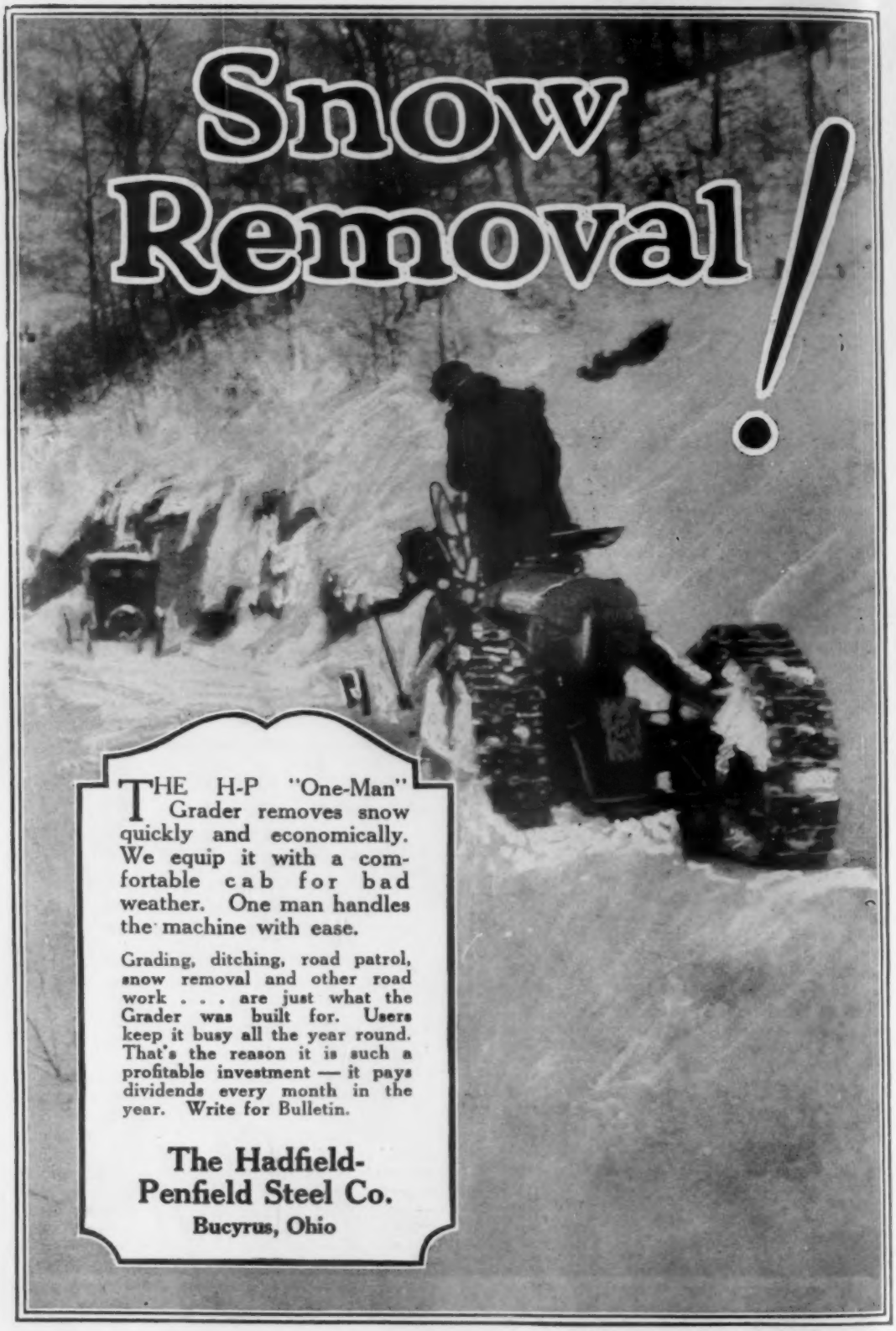
Moore Named as Full-Crawler Distributor

The Full-Crawler Company, 519 Clinton Street, Milwaukee, Wis., manufacturer of the Trackson Full-Crawler for Fordson tractors, has announced the appointment of the H. W. Moore Equipment Company, Sixth and Acoma, Denver, Colo., as distributors in the Denver branch territory. The H. W. Moore Equipment Company will carry a complete line of Trackson Full-Crawlers and repair parts in stock.

Large Installation of Highway Lighting Units

The 19-mile stretch of highway from South Jacksonville to Neptune, Fla., has been adequately illuminated at night by means of General Electric Novalux highway lighting units. The installation is said to be the largest in the country. The units are equipped with 400-candle-power lights and are mounted sufficiently high so that glare is eliminated without cutting down the volume of the illumination. Furthermore, light is confined to the highway and is not wasted in illuminating adjoining terrain.

These lights are turned on every night at the same time that lights in South Jacksonville are turned on, and remain lighted until midnight. The County Commissioners expect later to have the lights on until daybreak.


Snow Removal!
THE H-P "One-Man" Grader removes snow quickly and economically. We equip it with a comfortable cab for bad weather. One man handles the machine with ease.
Grading, ditching, road patrol, snow removal and other road work . . . are just what the Grader was built for. Users keep it busy all the year round. That's the reason it is such a profitable investment — it pays dividends every month in the year. Write for Bulletin.
The Hadfield-Penfield Steel Co.
Bucyrus, Ohio

THE JUNGLEGYM WELL POPULATED

A New Piece of Playground Apparatus

The Junglegym climbing structure is a fine piece of all-steel playground equipment announced by A. G. Spalding & Bros., Chicopee, Mass. This unit is made of galvanized steel pipe in a cubical or multi-cage form with all spaces 2 feet square, through and over which children can climb with perfect safety. There are always several bars to grasp with their hands, arms, or legs, and usually the child uses all of them.

The youngsters climb to "the top of the world," race through the channels, play tag, hang from the horizontal bars by hands or knees, do a flip, skin the cat, and other old-time sports and stunts and never seem to tire of the sport.

There are 35 Junglegyms which have been installed in the playgrounds of New York City, and they are always in demand summer and winter. One point well worth consideration by cities having supervision only in the summer months, is that the Junglegym can be used continuously whether a director is present or not. This gives the children a year-round playground device on which there is always space for everybody. There are no moving parts and nothing to get out of order.

New Climax Sales Representatives

The Climax Engineering Company, Clinton, Iowa, has announced the appointment of R. B. Sinnock as a Sales Representative. He will make his headquarters at Clinton and will handle the sales of Climax gasoline engines in the territory adjacent to the manufacturing plant. Mr. Sinnock was previously a member of the sales force of the Dayton-Dowd Company, Quincy, Ill.

C. H. Adams has been appointed Sales Representative and will travel throughout the southeastern portion of the United States.

Tractor Governors That Do Not Reduce Power

A test recently conducted by the University of Nebraska has shown that at least one governor developed for use with the Fordson tractor does not reduce the power of the motor. Governors are necessary on Fordsons regardless of the kind of work they are engaged in, yet many owners have hesitated in the past to install governors, because of lost power. The Pickering governor, made by the Pickering Governor Company, Portland, Conn., has been definitely reported as not taking away any of the power of the Fordson unit and yet controlling it properly.

This governor, because of its special construction with no joints or links, is instantly responsive to the slightest load changes, and, in fact, automatically controls the motor. The Pickering maintains a steady, even speed at all times, which adds years of service to the Fordson.

New Stockland Distributors

The Stockland Road Machinery Company, Minneapolis, Minn., has appointed the Beckwith Machinery Company, Philadelphia, Pa., to represent it in the eastern and southern sections of Pennsylvania. J. W. Miller has been appointed District Sales Manager in Iowa, and M. J. Donnelly of the Dowlin Machinery Company, Billings, Mont., will represent the Stockland line in Montana and northern Wyoming.

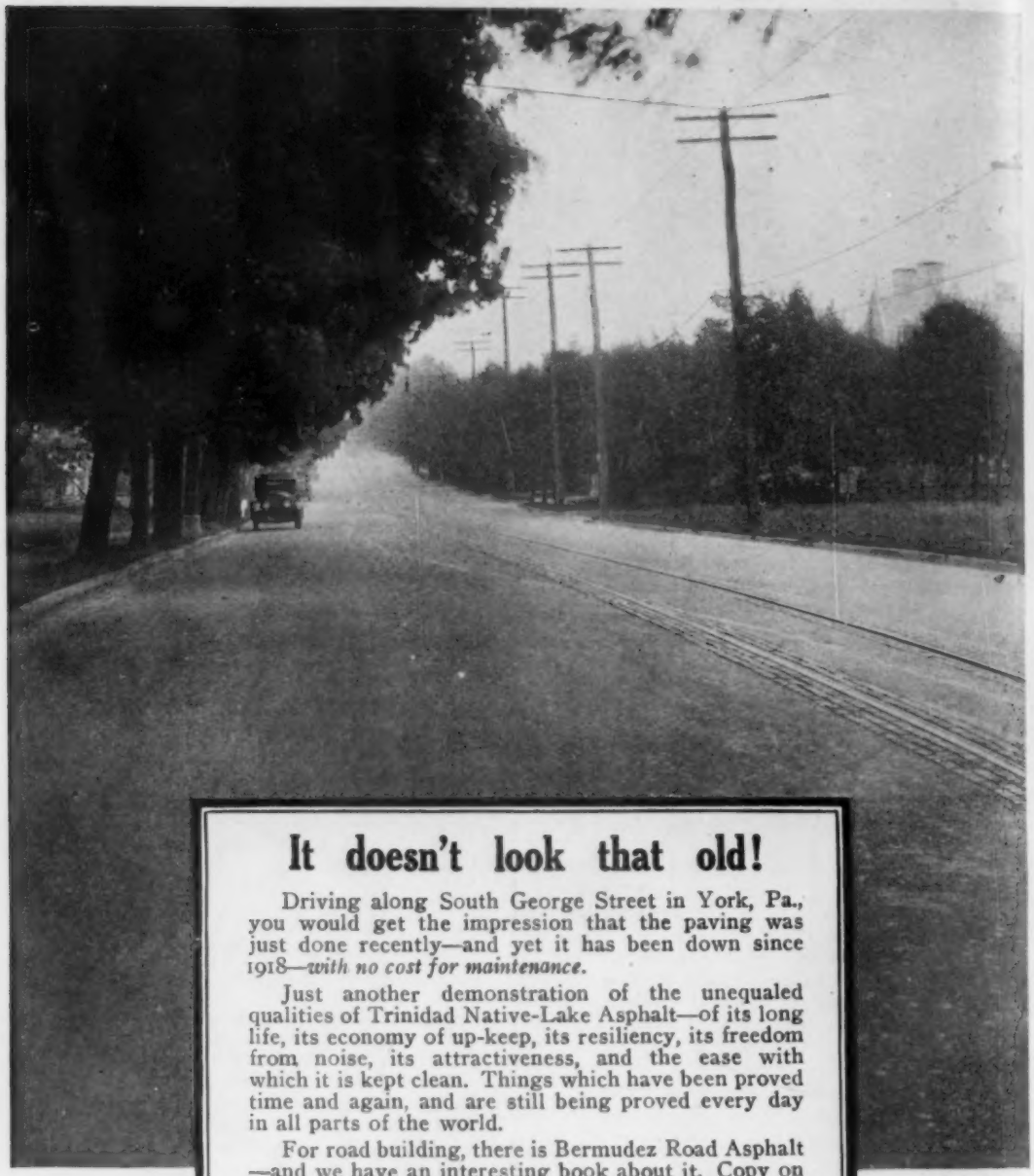
A new foreign distributor for Stockland graders and road machinery is the Gippsland and Northern Co-Operative Company, Ltd., of Melbourne, Australia. The Havana Fruit Company, Havana, Cuba, has been assigned the Cuban territory, and H. J. Schreiner and C. T. McGrew of the Stockland Company have been conducting an extensive road-building demonstration for Cuban government officials near Nazareno, about 25 miles from Havana, in cooperation with the Havana Fruit Company.

New Paving Brick Manufacturers Association Officers

At the annual meeting of the Eastern Paving Brick Manufacturers Association, held December 8 in New York, the following officers were elected: President, R. L. Winslow, New York; Secretary, W. C. Perkins, Philadelphia, Pa.; Treasurer, R. T. Hutchins, Wilkes-Barre, Pa.; Vice-President, W. W. Cunningham, Pittsburgh, Pa.; F. L. Stowell, Olean, N. Y.; C. C. Blair, Canton, Ohio; J. W. Hall, Baltimore, Md.; Governor, C. P. McFadden, Toronto, Ohio; Alternate, D. R. Potter, Clarksburg, W. Va.

New Oxweld General Sales Manager

The Oxweld Acetylene Company, 30 East 42nd Street, New York City, has announced the appointment of J. N. Walker as General Sales Manager. L. D. Burnett has been appointed Eastern Department Sales Manager to succeed Mr. Walker, and Z. T. Davis, Jr., is now filling Mr. Burnett's former assignment as Assistant Sales Manager, Eastern Department. Mr. Walker is well known in the oxyacetylene industry, having served for many years in progressive advancement through the Oxweld sales organization.



It doesn't look that old!

Driving along South George Street in York, Pa., you would get the impression that the paving was just done recently—and yet it has been down since 1918—*with no cost for maintenance.*

Just another demonstration of the unequaled qualities of Trinidad Native-Lake Asphalt—of its long life, its economy of up-keep, its resiliency, its freedom from noise, its attractiveness, and the ease with which it is kept clean. Things which have been proved time and again, and are still being proved every day in all parts of the world.

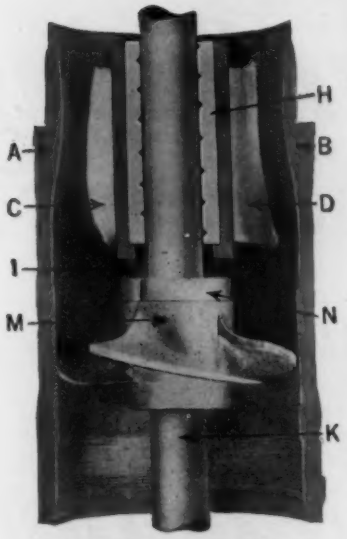
For road building, there is Bermudez Road Asphalt —and we have an interesting book about it. Copy on request.

THE BARBER ASPHALT COMPANY

PHILADELPHIA

New York, Chicago, Pittsburgh, St. Louis, Kansas City, San Francisco

TRINIDAD LAKE ASPHALT



SECTION THROUGH AN AXIFLO PUMP

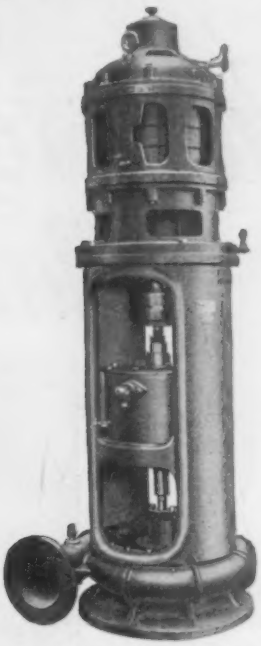
This shows Impeller M, discharge veins C and D, shaft K, bushing H and discharge vein shell A and B

Two Types of Deep Well Pumps

The increasing density of urban population has brought about the necessity of obtaining the water-supplies for many of our cities and towns from deep wells, sometimes of great depths. This has given rise to the consideration of the efficiency of various types of deep-well pumping apparatus, the volume of water delivered from a well of a given size, and the performance of deep-well pumps when seasons and exceptionally long dry spells cause appreciable variations in the water-level.

To meet these conditions, the Worthington Pump & Machinery Corporation, Deane Works, Holyoke, Mass., has developed two types of rotating deep-well pumps, both with exclusive design features known as the Axiflo and the Coniflo. The Axiflo pump is intended for wells of 6 to 20 inches diameter and larger inside diameter of casing in which the water-level, in spite of heavy pumping, will remain within approximately one or two hundred feet or less from the level of the ground. It is claimed that it will deliver a greater quantity of water from a well of a given size casing than other types of rotating or reciprocating deep-well pumps. It may also be used in wells that are too small in diameter to permit the use of the centrifugal type of pump. Impellers of special design are used which impart an upward constant non-pulsating movement to the water column. As the water leaves the impellers, its upward flow has a circumferential tendency, but immediately above each impeller is a guide vane which converts the velocity of flow into pressure and the circumferential tendency into a true axial flow, thereby giving a constant upward flow parallel to the axis of the pump and free from eddies and counter-currents.

The efficiency curve of the pump is flat, enabling the pump to perform efficiently even though the head may vary somewhat from what was estimated. The weight of the driving shaft is taken by a thrust bearing located in the driving head. The usual form of drive is by means of a vertical electric motor directly connected to the pump-shaft through a flexible coupling, but driving heads arranged for belt drive can be secured. When water is to be delivered against an appreciable head above the ground, a centrifugal boosting pump is generally supplied, being built as part of the driving head. While the Axiflo pump is capable of delivering water against an above-ground head, the use of a centrifugal booster pump in combination makes possible the obtaining of greater efficiency and economy.



AXIFLO DRIVING HEAD WITH DIRECT-CONNECTED MOTOR AND CENTRIFUGAL BOOSTER

A CONIFLO IMPELLER

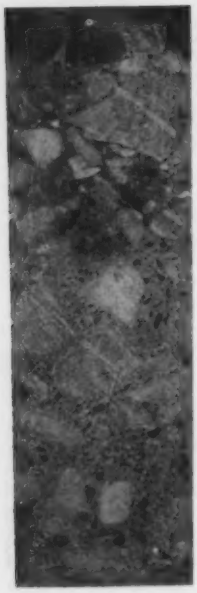
The Coniflo pump is suited for depths as great as 400 feet. It has a greater head per stage than the Axiflo pump, but is not capable of delivering as great a volume of water from a well of given size and depth. It is accordingly recommended by the manufacturers for wells over 150 feet deep where the number of impellers required on a pump of the Axiflo type would become excessive. The impellers of the Coniflo pump are cone-shaped, this design being supplementary to, and a development of, the Axiflo impeller. It effects a true combination of the axial flow principle with

~and in resurfacing~
"Armorplated" Concrete

Built by

THE Vibrolithic METHOD

makes top and bottom slabs a unit



Resurfacing Slab

Perfect Bond

Base Slab

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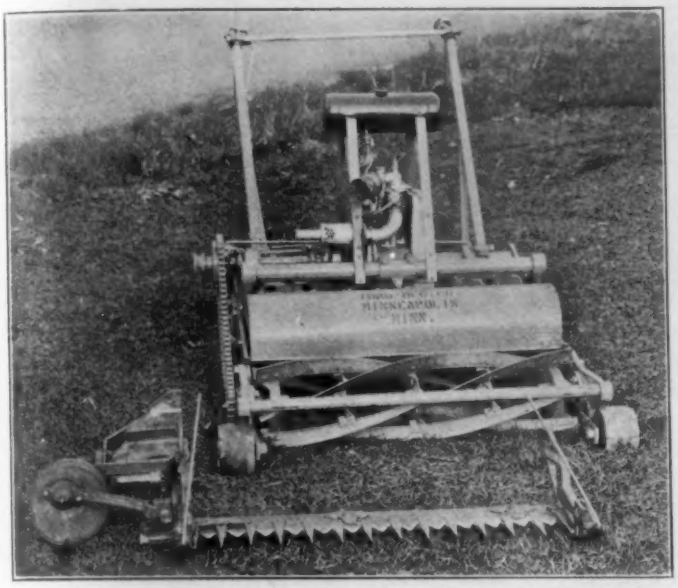
American Vibrolithic Corporation

INSURANCE EXCHANGE BUILDING DES MOINES, IOWA

SALES OFFICES IN 22 OTHER CITIES

the radial flow principle of the centrifugal type of deep-well impeller. The result is a high head per stage combined with the ability to deliver more water from a well of given size. With a Coniflo pump, the water in the well may raise or lower within wide limits without any material change in the capacity of the pump or in its horse-power requirements. Driving heads are furnished for direct-connected vertical motor or belt drive. A booster pump built into the driving head can also be secured.



THE TORO MOWER WITH ROTARY AND CLIPPER EQUIPMENT

A Motor-Driven Mower for Fairway or Rough

A combination motor mowing machine known as the new "Park Special," made by the Toro Manufacturing Company, Minneapolis, Minn., has a distinct advantage in that it can be converted from an ordinary rotary motor mower to a sickle bar mower in about one hour's time by an ordinary laborer.

The advantages of this combination machine are that it can be used with the revolving reel when desired to cut the grass short, or, in taking care of taller grass, commonly called "rough," the sickle bar can be applied, making it very useful for cutting weeds, sunflowers, or similar growth where the revolving wheels would not function properly and it is not desired to mow the grass fine.

It is expected that this machine will be particularly valuable on city parks, estates, cemeteries, and golf clubs, which usually have a certain percentage of their land that they do not desire to mow closely, yet do not wish to have it become unsightly by allowing the grass to grow too high.

Harnischfeger Moves Birmingham Office

The Harnischfeger Sales Corporation, Milwaukee, Wis., has announced the removal of its Birmingham, Ala., office from 431 First National Bank Building, to 401 Pioneer Building. J. Van Buskirk is District Manager in charge.

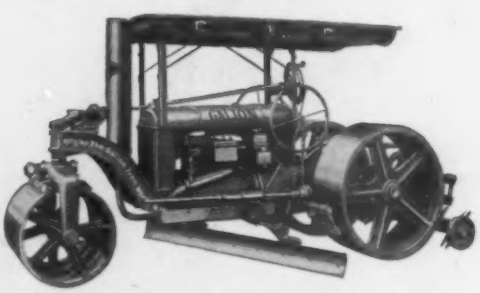
An Effective Road Unit with Fordson Power

The Junior motor roller made by the Galion Iron Works and Manufacturing Company, Galion, Ohio, has three-point suspension, which greatly increases its efficiency and reduces the liability of breakage and the liability of operating troubles to a minimum.

The heavy channel steel gooseneck chassis frame is solid and massive and supports the full weight of the power-plant. This eliminates the danger of bolting the gooseneck to the transmission case. The manufacturers claim that this unit when used as a tractor has 40 to 50 per cent more power than the Fordson tractor.

The blade is placed beneath the machine and is held to its work by the weight of the roller itself. The scarifier extends the full spread of the roller at the rear and will work the entire width of the roller at one trip. The special compression release springs insure constant and firm contact with the road.

The Galion Junior motor roller is made in 3-, 4- and 5-ton sizes. The planer blade is reversible and will make either a right or a left cut as desired. With this outfit it is possible to roll a subgrade or road, or the road may be rolled and leveled at one operation. The manufacturers state that the 3-ton Junior roller has been found well adapted for rolling and leveling greens and fairways on golf courses, as well as for general maintenance work on dirt roads.



THE GALION JUNIOR ROLLER

The Galion Junior motor roller is made in 3-, 4- and 5-ton sizes. The planer blade is reversible and will make either a right or a left cut as desired. With this outfit it is possible to roll a subgrade or road, or the road may be rolled and leveled at one operation. The manufacturers state that the 3-ton Junior roller has been found well adapted for rolling and leveling greens and fairways on golf courses, as well as for general maintenance work on dirt roads.

THE FUN FUL LINE
SWIMMING POOLS

"See that slide? I've just been down it. Isn't it G-R-E-A-T to go swishing through the air and 'splish-splash' into the water, and then do it all over again!"

—Everything that this boy, or his father, mother, aunts, uncles, brothers, sisters, or cousins, could desire in water slides—for outdoor or indoor use, in all sizes and styles—straight slides and wave slides—we have them all. All our slides are made entirely of steel and malleable iron, except the chute side rails and stair treads, which are of hand-finished hardwood.

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